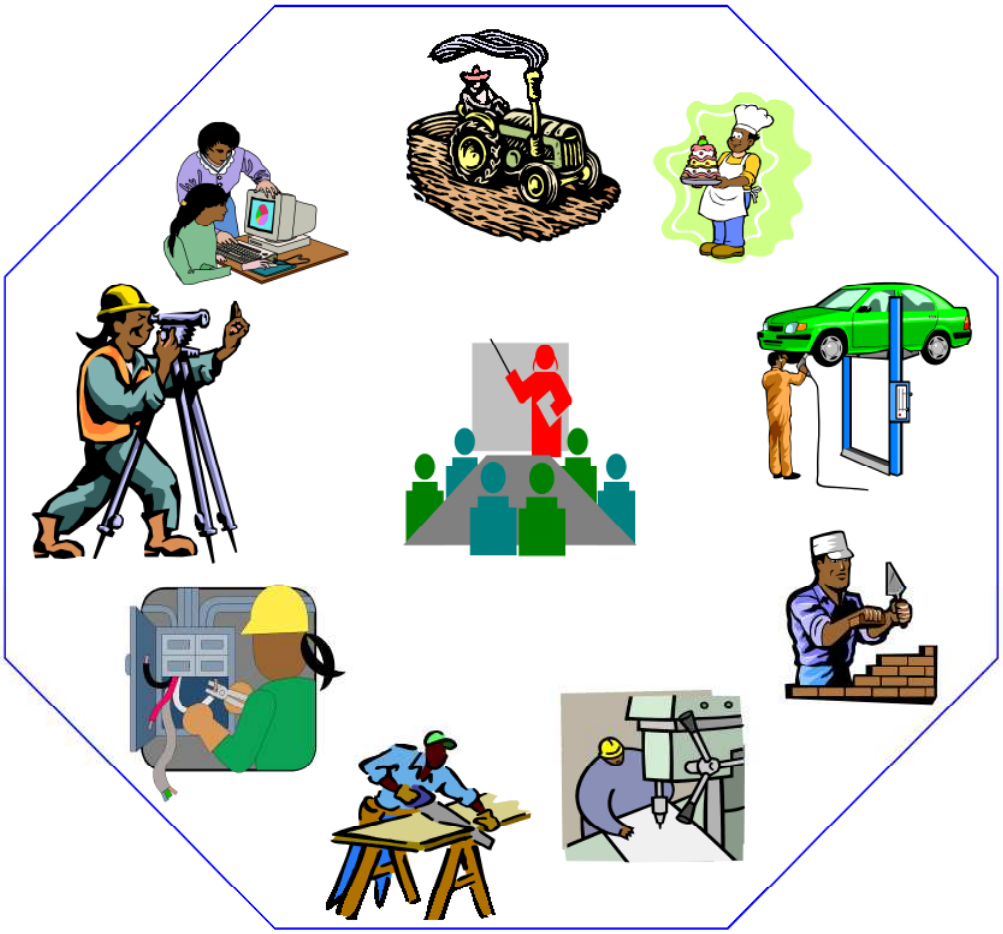
Federal Democratic Republic of Ethiopia

OCCUPATIONAL STANDARD

# DAIRY PRODUCTS PROCESSING

## NTQF Level II, III & IV



*Ministry of Education*
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# Introduction

Ethiopia has embarked on a process of reforming its TVET-System. Within the policies and strategies of the Ethiopian Government, technology transformation – by using international standards and international best practices as the basis, and, adopting, adapting and verifying them in the Ethiopian context – is a pivotal element. TVET is given an important role with regard to technology transfer. The new paradigm in the outcome-based TVET system is the orientation at the current and anticipated future demand of the economy and the labor market.

The Ethiopia Occupational Standards (EOS) is the core element of the Ethiopian National TVET-Strategy and an important factor within the context of the National TVET-Qualification Framework (NTQF). They are national Ethiopian standards, which define the occupational requirements and expected outcome related to a specific occupation without taking TVET delivery into account.

This document details the mandatory format, sequencing, wording and layout for the Ethiopia Occupational Standard which comprised of Units of Competence.

A Unit of Competence describes a distinct work activity. It is documented in a standard format that comprises:

- Occupational title and NTQF level
- Unit title
- Unit code
- Unit descriptor
- Element and Performance criteria
- Variables and Range statement
- Evidence guide

Together all the parts of a Unit of Competence guide the assessor in determining whether the candidate is competent.

The ensuing sections of this EOS document comprise a description of the occupation with all the key components of a Unit of Competence:

- chart with an overview of all Units of Competence for the respective level including the Unit Codes and the Unit Titles
- contents of each Unit of Competence (competence standard)
- occupational map providing the Technical and Vocational Education and Training (TVET) providers with information and important requirements to consider when designing training programs for this standards and for the individual, a career path

## UNIT OF COMPETENCE CHART

**Occupational Standard: Dairy Products Processing**

**Occupational Code: IND DPP**

***NTQF Level II***

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|---|---|---|
| **IND DPP2 01 0613** Participate in Environmentally Sustainable Work Practices | **IND DPP2 02 0613** Conduct Routine Maintenance | **IND DPP2 03 0613** Apply Good Manufacturing Practice Procedures |
| **IND DPP2 04 0613** Implement the Food Safety Program and Procedures | **IND DPP2 05 0613** Work with Temperature Controlled Stock | **IND DPP2 06 0613** Work in a Freezer Storage Area |
| **IND DPP2 07 0613** Operate a Waste Water Treatment System | **IND DPP2 08 0613** Operate a Water Purification Process | **IND DPP2 09 0613** Operate a Bulk Liquid Transfer Process |
| **IND DPP2 10 0613** Apply Sampling Procedures | **IND DPP2 11 0613** Operate a Production Process | **IND DPP2 12 0613** Operate a Butter Churning and Oil Production Process |
| **IND DPP2 13 0613** Operate a Curd Production and Cutting Process | **IND DPP2 14 0613** Operate a Fill, Seal and can Process | **IND DPP2 15 0613** Operate a Cheese Pressing and Molding Process |
| **IND DPP2 16 0613** Operate a Packaging Process | **IND DPP2 17 0613** Handle Dangerous Goods/Hazardous Substances | **IND DPP2 18 0613** Produce Simple Word Processed Document**s** |
| **IND DPP2 19 0613** Participate in Workplace Communication | **IND DPP2 20 0613** Work in Team Environment | **IND DPP2 21 0613** Develop Business practice |
| **IND DPP2 22 0613** Standardize and Sustain 3S | | |

***NTQF Level III***

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| **IND DPP3 01 0613**<br>Set up a Production or Packaging Line for Operation | **IND DPP3 02 0613**<br>Identify Equipment Faults | **IND DPP3 03 0613**<br>Monitor Storage Facilities |
| **IND DPP3 04 0613**<br>Use Structured Problem Solving Tools | **IND DPP3 05 0613**<br>Perform Basic Milk Quality Tests | **IND DPP3 06 0613**<br>Control Contaminants and Allergens in the Workplace |
| **IND DPP3 07 0613**<br>Perform Pasteurized Milk Production Operation | **IND DPP3 08 0613**<br>Perform Yoghurt Production Operation | **IND DPP3 09 0613**<br>Carry out Cheese Making Operations |
| **IND DPP3 10 0613**<br>Coordinate Cheese Making Operations | **IND DPP3 11 0613**<br>Apply Raw Materials, Ingredient and Process Knowledge to Production Problems | **IND DPP3 12 0613**<br>Participate in a HACCP Team |
| **IND DPP3 13 0613**<br>Report on Workplace Performance | **IND DPP3 14 613**<br>Provide Work Skill Instruction | **IND DPP3 15 0613_**<br>Monitor Implementation of Work plan/Activities |
| **IND DPP3 16 0613**<br>Apply quality Control | **IND DPP3 17 0613**<br>Lead Workplace Communication | **IND DPP3 18 0613**<br>Lead Small Teams |
| **IND DPP3 19 0613**<br>Improve Business Practice | **IND DPP3 20 0613**<br>Prevent and Eliminate MUDA | |

***NTQF Level IV***

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|---|---|---|
| **IND DPP4 01 0613**<br>Audit a Heat Treatment Process | **IND DPP4 02 0613**<br>Apply Basic Process Engineering Principles to Food Processing | **IND DPP4 03 0613**<br>Apply Raw Materials, Ingredient and Process Knowledge to Production Problems |
| **IND DPP4 04 0613**<br>Apply an Understanding of Legal Requirements of Food Production | **IND DPP4 05 0613**<br>Identify, Evaluate and Control Food Safety Hazards | **IND DPP4 06 0613**<br>Identify the Physical and Chemical Properties of Materials, Food and Related Products |
| **IND DPP4 07 0613**<br>Carry Out Sampling and Interpret Tests for Cheese Production | **IND DPP4 08 0613**<br>Implement and Review The Processing of Market Milk and Related Products | **IND DPP4 09 0613**<br>Implement and Review the Preparation of Milk for Processing |
| **IND DPP4 10 0613**<br>Apply an Understanding of Food Additives | **IND DPP4 11 0613**<br>Produce Acid-coagulated Soft Cheese | **IND DPP4 12 0613**<br>Produce a Range Of Rennet-Coagulated Cheese |
| **IND DPP4 13 0613**<br>Produce Acid - Heat Coagulated Cheese | **IND DPP4 14 0613**<br>Implement and Review the Production of Concentrated and Dried Dairy Products | **IND DPP4 15 0613**<br>Implement and Review the Production of Ice Creams and Frozen Dairy Products |
| **IND DPP4 16 0613**<br>Implement & Review the Production of Fermented Dairy Products & Dairy Desserts | **IND DPP4 17 0613**<br>Apply Principles of Food Packaging | **IND DPP4 18 0613**<br>Assess Compliance with Food Safety Programs |
| **IND DPP4 19 0613**<br>Plan and Organize Work | **IND DPP4 20 0613**<br>Migrate to New Technology | **IND DPP4 21 0613**<br>Establish Quality Standards |
| **IND DPP4 22 0613**<br>Develop Individuals and Team | **IND DPP4 23 0613**<br>Utilize Specialized Communication Skills | **IND DPP4 24 0613**<br>Manage and Maintain Small/Medium Business |
| **IND DPP4 25 0613**<br>Apply Problem Solving Techniques and Tools | | |

# NTQF Level II

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Participate in Environmentally Sustainable Work Practices** |
| **Unit Code** | **IND DPP2 01 0613** |
| **Unit Descriptor** | This competency covers the outcomes required to effectively measure current resource use and carry out improvements including those reducing negative environmental impacts of work practices. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify current resource use and environmental issues. | 1.1. Workplace ***environmental and resource efficiency issues*** are identified.<br>1.2. Resources used in own work role are identified.<br>1.3. Current usage of resources ***is measured*** and recorded using ***appropriate techniques***.<br>1.4. Workplace environmental hazards are identified and reported to appropriate personnel. |
| 2. Comply with environmental regulations. | 2.1. ***Procedures*** are followed to ensure ***compliance***.<br>2.2. Environmental ***incidents*** are reported to appropriate personnel. |
| 3. Seek opportunities to improve environmental practices and resource efficiency. | 3.1. ***Enterprise plans*** are followed to improve environmental practices and resource efficiency.<br>3.2. ***Suggestions*** are made for improvements to workplace practices in own work area. |

| Variable | Range |
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| Environmental and resource efficiency issues | minimization of environmental risks and maximization of opportunities to improve business environmental performance and to promote more efficient production and consumption of natural resources, for example by:<br>• minimization of waste, through implementation of the waste management hierarchy<br>• efficient and effective use of energy and other resources<br>• seeking alternative sources of energy<br>• efficient use of materials and appropriate disposal of waste<br>• use of controls to minimise the risk of environmental damage from hazardous substances<br>• efficient water use<br>• reducing emissions<br>• life cycle analysis applied to issues such as energy supply, materials, transport, production |

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| Measure | and may include:<br>• counting the number of items entering/leaving a work area<br>• reading indicators in the work area<br>• obtaining relevant information from support personnel<br>• other simple means |
| Appropriate techniques | May include:<br>• material fed to/consumed by plant/equipment<br>• plant meters and gauges<br>• job cards including kanbans<br>• examination of invoices from suppliers<br>• measurements made under different conditions<br>• Examination of relevant information and data. |
| Procedures | may include:<br>• All operations are performed in accordance with procedures including all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards. |
| Compliance | May include:<br>• Compliance includes meeting relevant federal, state and local government laws, by-laws, regulations and mandated codes of practice. It also includes any codes and standards that the enterprise applies voluntarily. |
| Incidents | May include:<br>• breaches or potential breaches of regulations<br>• Occurrences outside of standard procedure which may lead to lower environmental performance. |
| Enterprise plans | May include:<br>• documented policies and procedures<br>• work plans to minimize waste, increase efficiency of water/energy use, minimize environmental hazards |
| Suggestions | May include:<br>• prevent and minimize environmental risks and maximize opportunities<br>• reduce emissions of greenhouse gases<br>• reduce use of non-renewable resources<br>• improve energy efficiency<br>• increase use of renewable, recyclable, reusable and recoverable resources<br>• reduce waste<br>• increasing the reusability/recyclability of wastes/products<br>• Reduce water usage and/or water wastage. |

| **Evidence Guide** | |
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| Critical aspects of Competence | It is essential that competence is demonstrated in the knowledge and skills:<br>• identify and measure resources used in their job<br>• identify situations likely to lead to an environmental incident |

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| | • Follow procedures related to environmental performance.<br>Consistent performance should be demonstrated. For example, look to see that:<br>• work is routinely to procedures<br>• The minimum of resources is used consistent with the job requirements, good practice and the procedures. |
| Underpinning Knowledge and Attitudes | Competency includes sufficient knowledge to:<br>• have a basic understanding of sustainability<br>• know the environmental hazards/risks, resource use and inefficiencies associated with own workplace (at an appropriate level)<br>• know the relevant environmental and resource efficiency systems and procedures for own work area<br>• know the impact of laws and regulations to a level relevant to the work context |
| Underpinning Skills | Required skills include the ability to:<br>• report as required by procedures<br>• follow procedures and instructions and respond to change<br>• ask questions and seek clarifications relating to work requirements<br>• Reading and writing is required in order to interpret required procedures and complete required workplace forms/reports.<br>• Numeracy is required to interpret numeric workplace information, readings and measurements, handle data as required and complete numeric components of workplace forms/reports. |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Conduct Routine Maintenance** |
| **Unit Code** | **IND DPP2 02 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to inspect equipment and carry out routine maintenance and/or adjustment using a limited range of hand tools. |

| Elements | Performance Criteria |
|---|---|
| 1. Conduct routine inspection of plant and equipment | 1.1. Equipment is inspected to identify signs of wear.<br>1.2. Nature of maintenance requirement is assessed. |
| 2. Prepare to conduct routine maintenance | 2.1. ***Maintenance task*** is assessed to determine tools and services required.<br>2.2. Equipment is prepared for maintenance.<br>2.3. Hand tools are selected according to task requirements.<br>2.4. Tools are checked before use and unsafe and/or faulty items are reported within standard procedures.<br>2.5. Maintenance is planned and scheduled in consultation with affected work areas to minimize disruption to production. |
| 3. Carry out routine maintenance | 3.1. ***Routine maintenance*** on equipment is carried out according to workplace procedures.<br>3.2. Maintenance activities are reported according to workplace reporting requirements. |
| 4. Complete maintenance tasks | 4.1. Equipment is returned to operating order.<br>4.2. ***Tools and materials*** are stored according to workplace procedure.<br>4.3. Relevant personnel are notified of maintenance completion.<br>4.4. Housekeeping standards are maintained.<br>4.5. Work is conducted in accordance with workplace environmental guidelines. |

| Variable | Range |
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| Typical routine maintenance tasks | may include:<br>• replacement of consumable components, such as O-rings, hoses, filters and other 'bolt-on/bolt-off' equipment parts<br>• lubrication of equipment and maintenance of fluid levels<br>• simple adjustment, alignment or attachment of equipment components, parts, guides and sensors<br>• clearing blocked nozzles, such as glue nozzles<br>• positioning/attaching equipment components<br>• carrying out basic maintenance on video inkjet machines |

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| Routine maintenance | May include:<br>• Routine maintenance is carried out according to company policies and procedures, licensing requirements, legislative requirements and industrial awards and agreements |
| Tools and materials | may include:<br>• a limited range of hand tools, such as spanners and screwdrivers, grease guns, Allen keys and measuring and alignment equipment<br>• Materials may include:<br>• lubricants and consumables for video inkjet printers |
| Workplace information | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production log books<br>• routine maintenance schedules<br>• manufacturers' advice<br>• condition monitoring information |
| Inspections of equipment | May include:<br>• informally or as part of a structured program associated with proactive maintenance |

| **Evidence Guide** | |
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| Critical aspects of Competence | Evidence of ability to:<br>• identify routine maintenance tasks for machine or equipment<br>• monitor operation and identify need for maintenance tasks<br>• schedule maintenance tasks and communicate requirements with affected personnel<br>• select and use appropriate hand tools to undertake routine maintenance<br>• assess readiness for returning machine or equipment to operation or referring for further attention<br>• complete maintenance documentation<br>• Apply safe work practices and identify OHS hazards and controls. |
| Underpinning Knowledge and Attitudes | Knowledge of:<br>• system in place to manage maintenance of plant and equipment in the workplace, including programs, such as responsive, preventative and proactive maintenance as appropriate<br>• responsibilities for participating in the maintenance program, including scope of operator responsibilities, roles of others involved in plant and equipment maintenance and procedures for raising maintenance orders where requirements are outside operator role<br>• basic operating principles of equipment to be maintained<br>• signs and symptoms of faulty equipment and early warning signs of potential problems |

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| | • basic checks used to confirm the nature of maintenance requirements, including distinguishing between mechanical and electrical faults and identifying probable causes or conditions that may increase maintenance requirements of equipment used<br>• procedures for issuing, maintaining and storing tools used<br>• safe use of hand tools and measuring instrumentation relevant to maintenance responsibilities<br>• lubrication requirements, including requirements to use food grade lubricants as required and consequences of using incorrect type or amount of lubricants<br>• safe work procedures, including appropriate signage of maintenance activities as required, use of appropriate personal protective clothing and equipment, and awareness of safety hazards and controls relating to maintenance tasks<br>• methods used to render equipment safe to work on or clean including lock out/tag out and isolation procedures (in some cases this may involve liaising with other maintenance operators)<br>• procedures and inspections to be carried out to confirm that equipment is in operating order and all parts are accounted for<br>• food safety risks arising from poor personal hygiene, cleaning and housekeeping practices and procedures associated with routine maintenance<br>• maintenance planning, scheduling and recording procedures |
| Underpinning Skills | Ability to:<br>• access workplace information such as the equipment history, faults or difficulties<br>• select, fit and use personal protective clothing and/or equipment<br>• inspect equipment for signs of wear, such as visual inspections to detect leaks, listening for unusual noises and/or vibrations<br>• identify and describe maintenance requirements, including the ability to assess the urgency of the maintenance issue, recognize common types of maintenance requirements and run basic checks according to workplace procedures to confirm the need for and type of maintenance support required<br>• take action to address maintenance requirements, such as carrying out routine maintenance within level of skill and responsibility and/or reporting outstanding maintenance to appropriate personnel using the required forms or request system<br>• plan and schedule maintenance within level of responsibility, such as consulting affected personnel and/or work areas on timing and notifying of maintenance progress |

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| | • prepare equipment and work area for routine maintenance, including cleaning equipment prior to carrying out maintenance and confirming that equipment is safe to work on, and simple isolation or tag out of equipment as required by workplace procedure<br>• select and use hand tools as required to carry out maintenance task<br>• select relevant parts and materials as required to carry out maintenance task<br>• carry out routine maintenance tasks according to workplace procedures<br>• on completion of maintenance tasks, return equipment to operational order, including confirming that all equipment parts, nuts and bolts are accounted for and correctly tightened, and where required, cleaning and sanitizing equipment<br>• store tools in designated location, including basic tool maintenance, such as oiling<br>• complete records of maintenance as required<br>• maintain work area to meet housekeeping standards<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Apply Good Manufacturing Practice Procedures** |
| **Unit Code** | **IND DPP2 03 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to comply with relevant Good Manufacturing Practice (GMP) codes through the implementation of workplace GMP and quality procedures. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify requirements of GMP related to own work | 1.1. Sources of information on GMP requirements are located.<br>1.2. GMP requirements and responsibilities related to own work are identified. |
| 2. Ensure that personal hygiene and conduct meets GMP requirements | 2.1. Personal hygiene meets GMP requirements.<br>2.2. Clothing is prepared, used, stored and disposed of according to GMP and workplace ***procedures***.<br>2.3. Personal movement around the workplace complies with area entry and exit procedures. |
| 3. Implement GMP requirements when carrying out work activities | 3.1. Work area, materials, equipment and product are routinely monitored to ensure compliance with GMP requirements.<br>3.2. Raw materials, packaging components and product are handled/stored according to GMP and workplace procedures.<br>3.3. Workplace procedures to control resource allocation are followed to meet GMP requirements.<br>3.4. Common forms of contamination are identified and appropriate control measures are followed according to GMP requirements.<br>3.5. The workplace is maintained in a clean and tidy order to meet GMP housekeeping standards.<br>3.6. Work is conducted in accordance with workplace environmental guidelines.<br>3.7. Out-of-specification or contaminated materials, packaging components/consumables and product, waste and recyclable materials are handled and disposed of according to GMP requirements and workplace procedures.<br>3.8. Signs of unacceptable plant or equipment condition are identified and reported. |
| 4. Participate in improving GMP | 4.1. ***Processes, practices or conditions*** which could result in non-compliance with GMP are identified and reported according to workplace reporting requirements.<br>4.2. Corrective action is implemented within level of responsibility.<br>4.3. GMP issues are raised with designated personnel. |

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| 5. Complete workplace documentation to support GMP | 5.1. Documentation and recording requirements are identified.<br>5.2. Information is recorded according to workplace reporting procedures to meet GMP requirements. |

| Variable | Range |
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| Policies and procedures | May include:<br>• Work activities are carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements and industrial awards and agreements |
| Unacceptable plant or equipment condition | May include:<br>• Unacceptable plant or equipment condition can include:<br>• damage to plant or equipment<br>• failure of cleaning regime<br>• signs of pest infestation |
| Legislative requirements | May include:<br>• Legislative requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes:<br>• relevant GMP codes<br>• the Therapeutic Goods Act<br>• other legislation and codes relevant to product and market<br>• legislation relating to environmental management, Occupational Health and Safety (OHS), anti-discrimination and equal opportunity |

| Evidence Guide | |
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| Critical aspects of Competence | • Assessors must be satisfied that the person can consistently perform the unit as a whole, including all elements, performance criteria, and required skills and knowledge. A holistic approach should be taken to the assessment.<br>• Assessment of this unit would typically involve questioning and workplace observation. It may involve additional collection of evidence from a range of sources, such as third party reports, workplace documentation relating to GMP and real or simulated workplace contexts. |
| Underpinning Knowledge and Attitudes | Knowledge of:<br>• the role of GMP in preventing contamination, its relationship to legal requirements of pharmaceutical manufacturers and potential implications of non-compliance<br>• GMP arrangements in the workplace, including relevant GMP codes of practice and related workplace policies and procedures to implement these responsibilities<br>• the relationship between GMP and the quality system, personnel responsible for designing and managing GMP, personal role to maintain GMP, and the role of internal and external auditors as appropriate |

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| | • procedures followed to investigate contamination events and performance improvement processes<br>• personal clothing and footwear requirements for working in and/or moving between work areas<br>• personal clothing use, storage and disposal requirements<br>• awareness of common micro-biological, physical and chemical contaminants relevant to the work process, including the types of contamination likely to occur, such as cross-contamination, the conditions under which they occur, possible consequences and control methods to prevent occurrence<br>• basic concepts of quality assurance, including quality specifications, operating parameters, validation procedures and control methods, and related documentation, including Standard Operating Procedures (SOPs) and/or batch instructions<br>• control methods and procedures used in the work area to maintain GMP, including an understanding of the purpose of control, the consequence if not controlled and the method of control where relevant, as well as an understanding of the methods used to monitor process control<br>• basic understanding of the properties, handling and storage requirements of raw materials, packaging components and final product handled and used<br>• standards for materials, equipment and utensils used in the work area<br>• procedures for responding to out-of-specification or unacceptable performance/outcomes<br>• purpose of keeping records and the recording requirements of GMP, including product and materials traceability procedures<br>• housekeeping requirements and responsibilities relating to own work, and use and storage of housekeeping/cleaning equipment where relevant<br>• waste collection, recycling and handling procedures relevant to own work responsibilities<br>• responsibilities for reporting and recording quality information |
| Underpinning Skills | Ability to:<br>• locate and follow workplace information relating to GMP responsibilities<br>• identify and report situations that do or could compromise GMP<br>• participate in procedures to support GMP within level of responsibility<br>• identify and respond to out-of-specification or unacceptable raw materials, packaging components, final or part processed product within level of responsibility<br>• use oral communication skills/language competence to fulfil the job role as specified by the organisation, including |

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| | questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Implement Food Safety Program and Procedures** |
| **Unit Code** | **IND DPP2 04 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required maintaining personal hygiene and conduct food handling, housekeeping and waste disposal related to work tasks and responsibilities where work involves operation of production and/or packaging equipment and processes. |

| Elements | Performance Criteria |
|---|---|
| 1. Implement the food safety program | 1.1. ***Food handling*** requirements are identified.<br>1.2. Food handling is carried out according to the ***food safety program***.<br>1.3. Food safety hazards are controlled as required by the food safety program.<br>1.4. Where food safety control requirements are not met, the incident is promptly reported and corrective action is taken.<br>1.5. Food safety ***information*** is recorded to meet requirements of the food safety program.<br>1.6. The workplace is maintained in a clean and tidy order to meet workplace standards.<br>1.7. Work is conducted in accordance with workplace environmental guidelines. |
| 2. Participate in maintaining and improving food safety | 2.1. Work area, ***materials, equipment and product*** are routinely ***monitored*** to ensure compliance with food safety requirements.<br>2.2. Processes, practices or conditions which could result in a ***food safety breach*** are identified and reported according to workplace reporting requirements.<br>2.3. Corrective action is taken in accordance with the food safety program.<br>2.4. Food safety issues are raised with designated personnel. |
| 3. Comply with personal hygiene standards | 3.1. Personal hygiene meets the ***requirements*** of the food safety program.<br>3.2. Health conditions and/or illness are ***reported*** as required by the food safety program.<br>3.3. ***Clothing and footwear*** worn is appropriate for the food handling task and meets the requirements of the food safety program.<br>3.4. Movement around the workplace complies with the food safety program. |

| Variable | Range |
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| Food handling | refers to:<br>• food receipt and storage<br>• food preparation<br>• cooking, holding, cooling, chilling and reheating<br>• packaging, disposal |
| A food safety program | • is a written document that specifies how a business will control all food safety hazards that may be reasonably expected to occur in all food handling operations of the food business. The food safety program and related procedures must comply with legal requirements of the food safety standards and must be communicated to all food handlers. Where no food safety program is in place, food safety requirements may be specified in general operating procedures |
| Information | may be provided in:<br>• food safety program<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• log sheets and written or verbal instruction |
| Materials, equipment and product | can include:<br>• raw materials<br>• ingredients<br>• consumables<br>• part-processed product<br>• finished product and cleaning materials |
| Monitoring | describes the methods used to confirm that a food safety hazard is in control, such as:<br>• taking temperatures<br>• collecting samples<br>• conducting visual inspections<br>• conducting other tests as required |
| Examples of a breach of food safety procedures | could include:<br>• failure to check delivery temperatures of potentially hazardous chilled food<br>• failure to place temperature-sensitive food in temperature controlled storage conditions promptly<br>• failure to wash hands when required<br>• use of cloths for unsuitable purposes<br>• failure to exercise GMPs in place |
| Responsibility for monitoring food safety | identifying breaches in food safety procedures and taking corrective action relates to own tasks and responsibilities and occurs in the context of the food safety program in the workplace |
| Food safety hazard | • is a biological, chemical or physical agent in, or condition of, food that has the potential to cause an adverse health effect |
| Hygiene requirements | Minimum personal hygiene requirements are specified by the food safety program. At a minimum this must meet legal |

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| | requirements as set out in the Food Safety Standards (codes need to be included) of the country and/or state or territory legislation/regulations |
| Reporting of health conditions and illnesses requirements | are specified by the food safety program. At a minimum this must meet legal requirements as set out in Food Safety Standard (codes need to be included) of the country and/or state or territory legislation/regulations |
| Appropriate clothing and footwear | depends on work requirements. It should be designed to ensure that the body and clothing itself does not contaminate food or surfaces likely to come into contact with food. Examples of clothing designed to prevent contamination by the body include:<br>• purpose designed overalls or uniforms, hair-nets, beard snoods, gloves and overshoes |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• identify own responsibilities with regard to food safety<br>• identify food safety risks in the workplace and the control measures used to manage them<br>• apply control measures in own work<br>• monitor compliance with food safety standards<br>• identify and act on non-compliances and participate in improving safety<br>• maintain required standards of personal hygiene<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• apply food safety procedures. |
| Underpinning Knowledge and Attitudes | • sources of information and expertise on procedures and responsibilities for food safety relating to own work<br>• basic concepts of HACCP-based food safety, including identification of hazards that are likely to occur, establishing appropriate methods of control and confirming that controls are met<br>• food safety management arrangements in the workplace, including awareness of food safety legislation, workplace policies and procedures to implement responsibilities, understanding the relationship between the quality system and food safety program, personnel responsible for developing and implementing the food safety program, the role of internal and external auditors as appropriate, procedures followed to investigate contamination events, and performance improvement processes<br>• awareness of common microbiological, physical and chemical hazards related to the foods handled in the work area, including the types of hazards likely to occur, the conditions under which they occur, possible consequences and control methods to prevent occurrence |

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| | • the properties, handling and storage requirements of ingredients, materials and products handled and used<br>• suitable standard for materials, measuring devices, equipment and utensils used in the work area<br>• food safety requirements related to work responsibilities, including personal hygiene, requirements and procedures to report illness and safe food handling practices for own work<br>• methods used to monitor that food safety is under control, including the purpose of sampling and taking measurements, such as temperature and pH, and conducting inspections and tests<br>• action required in the event of non-compliance (corrective action is typically described in the food safety program and/or related workplace information)<br>• purpose of keeping records and the recording requirements of the food safety program<br>• methods used in the workplace to isolate or quarantine food which may be unsafe<br>• product and ingredient traceability procedures, such as product recall where required by work responsibilities<br>• clothing and footwear requirements for working in and/or moving between food handling areas<br>• personal clothing maintenance, laundering and storage requirements<br>• appropriate bandages and dressings to be used when undertaking food handling<br>• housekeeping requirements and responsibilities relating to own work, and use and storage of housekeeping/cleaning equipment where relevant<br>• procedures to follow in the event of pest sighting or discovery of infestation<br>• purpose and importance of cleaning and sanitation procedures<br>• waste collection, recycling and handling procedures relevant to own work responsibilities<br>• cleaning and sanitation procedures where relevant<br>• impact of rework handling/addition on food safety where relevant<br>• sampling and test methods where relevant |
| Underpinning Skills | • locate and follow workplace information relating to food safety responsibilities<br>• follow workplace procedures to maintain food safety as required by the food safety program relating to own work<br>• monitor food safety hazards as required by the food safety program, including methods such as visual inspection, sampling and testing<br>• record results of monitoring, and maintain records as required by the food safety program |

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| | • identify and report situations that do not meet the requirements of the food safety program and/or could result in unsafe food<br>• take corrective action as required by food safety program within level of responsibility<br>• handle, clean and store equipment, utensils, packaging materials and similar items according to the requirements of the food safety program as required by work role<br>• maintain personal hygiene consistent with the food safety program<br>• take necessary precautions when moving around the workplace and/or from one task to another to maintain food safety<br>• wear and maintain appropriate clothing/footwear as required by work tasks and consistent with the requirements of the food safety program<br>• report health conditions and illness as appropriate according to the food safety program<br>• handle and dispose of out-of-specification or contaminated food, waste and recyclable material according to food safety program as this requirement relates to own work responsibility<br>• maintain the work area in a clean and tidy state<br>• identify and report signs of pest infestation<br>• record food safety information in appropriate format<br>• clean and sanitize equipment according to enterprise procedures<br>• collect samples and conduct tests according to the food safety program according to enterprise procedures<br>• participate in investigating food safety breaches according to enterprise procedures<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
|---|---|
| **Unit Title** | **Work with Temperature Controlled Stock** |
| **Unit Code** | **IND DPP2 05 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to store and retrieve temperature controlled stock from appropriate storage facilities. |

| Elements | Performance Criteria |
|---|---|
| 1. Store stock to meet temperature control requirements | 1.1. Goods requiring temperature control are identified.<br>1.2. Goods are located in correct storage areas to meet storage temperature, stores handling and stock rotation requirements.<br>1.3. Stores ***information*** is recorded according to workplace requirements. |
| 2. Monitor and maintain temperature of stock within specifications | 2.1. ***Stock*** temperature is monitored to confirm temperature is within specified limits.<br>2.2. Storage areas are monitored to confirm temperature is within storage zone limits.<br>2.3. Residence time in temperature controlled stores is monitored to meet stock control requirements.<br>2.4. Out-of-specification storage temperatures are identified and corrective action is taken. |
| 3. Transfer temperature controlled stock | 3.1. Goods are handled and transferred to maintain temperature control and meet stock rotation requirements.<br>3.2. Stores transfer information is recorded according to workplace reporting requirements.<br>3.3. Work is conducted in accordance with workplace environmental guidelines. |

| Variable | Range |
|---|---|
| Information | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production schedules and instructions<br>• manufacturers' advice<br>• standard forms and reports |
| Temperature controlled stock | may include stock to be stored at a constant temperature and at different temperatures for given durations |
| Policies and procedures | • Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Legislative requirements | are typically reflected in procedures and specifications. relevant to this industry includes: |

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| | • the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity |
| Temperature controlled storage facilities | include:<br>• any controlled temperature environment |

| **Evidence Guide** | |
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| Critical aspects of Competence | Evidence of ability to:<br>• identify storage requirements of temperature controlled stock<br>• monitor temperature of storage area and stock to ensure standards are maintained<br>• handle and transfer stock to maintain required conditions<br>• identify and act on non-conformances<br>• complete workplace documentation<br>• Apply food safety procedures. |
| Underpinning Knowledge and Attitudes | Knowledge of:<br>• Occupational Health and Safety (OHS) hazards and controls, including the purpose and limitations of protective clothing and equipment<br>• temperature controlled storage facilities and capacities available in the work area, such as temperature zones within a single store and concepts (e.g. the Cold Chain compliance) as relevant to work requirements<br>• temperature control requirements of stock handled in the work area, including acceptable temperature ranges and consequences of failing to meet these ranges, and where required requirements for gradual temperature change<br>• stock handling procedures for receiving and locating stock within a store, including stock rotation and procedures for identifying, segregating, and disposing of damaged or potentially unsafe stock<br>• stock handling procedures for transferring temperature controlled stock from a temperature controlled environment, including maximum duration stock can be held outside a controlled environment<br>• food safety and quality consequences of stock temperature control requirements not being met<br>• monitoring procedures and instrumentation, including use of thermometers or other temperature measuring instrumentation<br>• notification, recording and reporting requirements<br>• operating procedures for goods handling equipment as required<br>• housekeeping requirements for work area<br>• recording requirements and procedures |

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| Underpinning Skills | Ability to:<br>• access workplace information to determine product handling and storage requirements<br>• identify storage requirements including temperature limits, minimum duration at given temperatures, and segregation and co-storage requirements<br>• identify temperature controlled storage facilities and temperature zones available<br>• select, fit and use personal protective clothing and/or equipment<br>• use materials handling equipment in a temperature controlled environment as required to undertake work functions<br>• follow procedures to measure temperature of product, such as use of instrumentation as required to take core and surface temperatures<br>• read instrumentation, such as temperature gauges, to monitor stores and zone temperatures<br>• identify and report out-of-specification temperatures in product and storage facilities<br>• take corrective action in response to out-of-specification temperatures including implementation of procedures to segregate damaged or potentially unsafe product<br>• complete records of stock receival and transfer as required<br>• maintain work area to meet housekeeping standards<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
|---|---|
| **Unit Title** | **Work in a Freezer Storage Area** |
| **Unit Code** | **IND DPP2 06 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to enter and work in a freezer storage or cold room area. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare to enter a freezer storage environment | 1.1. Appropriate clothing and footwear are identified and available.<br>1.2. Clothing and footwear are correctly fitted prior to entering a freezer.<br>1.3. Checks and inspections are conducted according to workplace ***procedures***. |
| 2. Identify and monitor equipment operation in a freezer storage environment | 2.1. Effects of freezing temperatures on equipment used are identified.<br>2.2. Equipment is monitored to ensure it is in operational order when in use in a freezer. |
| 3. Handle frozen product safely | 3.1. Handling ***requirements*** for frozen product are identified.<br>3.2. Frozen product is handled safely.<br>3.3. Work is conducted in accordance with workplace environmental guidelines. |
| 4. Respond to emergencies | 4.1. Signs and symptoms of exposure are identified.<br>4.2. Appropriate action is taken to minimize effects of exposure of self and others. |

| Variable | Range |
|---|---|
| Policies and procedures | Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Requirements | relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, Occupational Health and Safety (OHS), anti-discrimination and equal opportunity |
| Workplace information | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production schedules and instructions<br>• manufacturers' advice<br>• standard forms and reports |

| Evidence Guide | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• identify risks associated with freezer storage to self and equipment and identify controls to address risks<br>• correctly use personal protective equipment<br>• use and monitor equipment in freezer storage<br>• take corrective action in response to typical faults, inconsistencies and symptoms of exposure<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• Apply food safety procedures. |
| Underpinning Knowledge and Attitudes | Knowledge of:<br>• purpose and conditions required in a freezer storage environment, including how temperature parameters are maintained in the freezer/cold room<br>• safety requirements and hazards associated with entering and working in a freezer storage/cold room area, including required protective clothing and equipment, limitations of protective clothing and equipment, and maximum work duration<br>• symptoms associated with hypothermia and action to take if these occur<br>• the effects of freezer/cold room temperatures and frozen condensation on equipment used in a freezer/cold room but designed for room temperature operation, including symptoms that equipment is unsafe or unfit for use<br>• effects of room temperatures on equipment using hydraulic oils designed for freezer/cold room temperatures<br>• typical freezing rates for product handled, such as products stacked on pallets<br>• handling requirements for moving pallets of frozen product and how this differs from moving pallets of fresh product<br>• the differences in product stability of pallets loaded with fresh compared with frozen product and related wrapping requirements<br>• the effect of freezing on product packaging and related handling requirements<br>• housekeeping requirements for work area |
| Underpinning Skills | Ability to:<br>• locate and fit appropriate protective clothing, footwear and equipment<br>• follow procedures to enter and work in a freezer environment to ensure safety of self and others, including carrying out relevant checks and inspections prior to entry as required by workplace procedures<br>• follow procedures to handle product to avoid product damage |

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| | • monitor operating performance of equipment used in the freezer and identify signs of unsafe or unfit operation<br>• conduct work in a manner appropriate to minimizing risk of contamination<br>• maintain work area to meet housekeeping standards<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Operate a Waste Water Treatment System** |
| **Unit Code** | **IND DPP2 07 0613** |
| **Unit Descriptor** | This unit describes the outcomes required to operate waste water treatment systems to comply with workplace requirements, trade waste agreements and site environmental authority. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare the waste water treatment process for operation | 1.1 Chemicals and test ***equipment*** are made available and ready for use.<br>1.2 Services are confirmed as available and ready for operation.<br>1.3 Pre-operational checks are conducted.<br>1.4 Instrumentation and test equipment is calibrated to manufacturer's specifications to meet workplace requirements.<br>1.5 Health and safety ***hazards***/maintenance requirements are identified and reported to appropriate personnel according to workplace reporting ***procedures***. |
| 2. Operate and monitor the waste water treatment process | 2.1 The waste water system is started up according to company procedures.<br>2.2 Plant is operated within limits of manufacturer's specifications to meet workplace requirements.<br>2.3 Equipment is ***monitored to confirm operating*** condition..<br>2.4 Waste water quality is monitored, ***tested*** and adjusted as required to meet water standards as defined by site license.<br>2.5 First flush systems are operated during rainfall events.<br>2.6 The workplace meets housekeeping standards. |
| 3. Analyze and respond to abnormal performance | 3.1 Water condition and plant operating conditions are analyzed to identify causes of abnormal performance.<br>3.2 Corrective action is taken in accordance with workplace procedures in response to hazards, out-of-specification test results and/or plant performance.<br>3.3 Emergency procedures are implemented as required according to workplace procedures and manufacturer's recommendations. |
| 4. Handover waste water treatment system | 4.1 Workplace records are maintained in accordance with statutory requirements and workplace procedures.<br>4.2 Handover is carried out according to workplace procedure.<br>4.3 Waste water treatment operators are aware of system status and related equipment at completion of handover. |

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| 5. Shutdown the waste water treatment system | 5.1 The waste water treatment system is shut down according to workplace procedures.<br>5.2 The waste water treatment system is prepared for storage in shut down mode.<br>5.3 Maintenance requirements are identified and reported according to workplace reporting procedure. |

| **Variable** | **Range** |
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| Equipment may include: | • screens<br>• pH correction<br>• oil/grease skimmers<br>• settling and treatment ponds<br>• aeration units<br>• lagoons<br>• first flush systems and wetlands<br>• Pumps and valves. |
| Equipment status | • Confirming equipment status involves<br>• conducting relevant pre-start checks<br>• confirming that housekeeping standards are met<br>• all safety guards are in place and equipment is operational. |
| Hazards | typically include handling chemicals, manual handling and flammable gases. |
| Policies and procedures | Work is carried out in accordance with company policies and procedures, manufacturer's recommendations, legislative requirements, site licenses and trade waste service agreements and industrial awards and agreements. Legislation refers to environmental acts and regulations. |
| Equipment operation and monitoring | • Operation and monitoring of equipment and processes typically requires the use of control panels and systems. |
| Tests may include | • pH<br>• solids<br>• colour/turbidity<br>• flow rate<br>• settling rate<br>• settled volume<br>• DO and BOD/COD levels. |
| Workplace information | can include:<br>• Standard Operating Procedures (SOPs)<br>• manufacturer's specifications |
| Teamwork | Work may require the ability to work within a team environment. |

| **Evidence Guide** | |
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| Critical aspects of Competence | Evidence of ability to:<br>• handle chemicals safely<br>• demonstrate wastewater system operating procedures<br>• demonstrate first flush system operating procedures |

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| | • conduct water quality tests<br>• take corrective action in response to out-of-specification results or non-compliance<br>• monitor supply and quality of waste water<br>• report and/or record corrective action<br>• demonstrate emergency procedures<br>• demonstrate shift handover procedure<br>• Demonstrate an operational shut down procedure. |
| Underpinning Knowledge and Attitudes | Knowledge of:<br>• relevant state OHS legislation, environmental acts and policies, standards and codes of practice relating to work responsibilities including awareness of standards set out in site license arrangements<br>• safe work procedures including awareness of health and safety hazards related to waste water system operation and associated control measures<br>• hierarchy of hazard control measures<br>• purpose and limitations of protective clothing and equipment<br>• methods used to render equipment safe to inspect, maintain and/or clean including lock-out, tag-out and isolation procedures<br>• water cycles for trade waste, storm water and sewerage including sources and flow patterns<br>• purpose and standards required by environmental agreements and responsibilities<br>• company policy relating to environmental performance<br>• consequences of non-conformance<br>• waste characteristics and treatment methods<br>• sampling and test procedures as appropriate<br>• purpose of chemicals used<br>• purpose of first flush systems and their relationship with the wastewater treatment system<br>• operating requirements and parameters<br>• water quality sampling and test procedures including the purpose of test and safe use, care and storage of relevant test equipment, interpretation and recording of results<br>• typical causes of non-conforming water quality and corrective action required<br>• equipment purpose and basic operating principles of waste water treatment equipment and methods<br>• requirements of both operational and long term shut down conditions to ensure the equipment is left in a safe state for the period of the shutdown and to minimize any delays in future start up<br>• housekeeping standards for the work area<br>• reporting and recording systems including both statutory and workplace requirements |

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| Underpinning Skills | Ability to:<br>• access workplace information to identify waste treatment requirements<br>• select, fit and use personal protective clothing and/or equipment<br>• confirm services are available and equipment is clean and ready for operation<br>• handle chemicals safely including follow correct preparation, handling and storage procedures and use of appropriate protective clothing and equipment<br>• conduct pre-start checks<br>• liaise with other work areas as required<br>• demonstrate wastewater system operating procedures in both manual and automatic modes<br>• demonstrate first flush system operating procedures in both manual and automatic modes<br>• monitor waste water system operation including monitoring:<br>➢ chemical addition rates and residuals<br>➢ temperatures<br>➢ flow rates<br>➢ equipment condition including calibration of instruments<br>➢ tests as required<br>➢ dissolved oxygen levels and pH levels<br>• conduct water quality tests<br>• take corrective action in response to out-of-specification results or non-compliance<br>• monitor supply and quality of waste water to and from the process<br>• report and/or record corrective action as required<br>• demonstrate emergency procedures to control chemical spills or other major incidents relevant to the workplace<br>• demonstrate shift handover procedure<br>• demonstrate an operational shut down procedure<br>• maintain workplace records to meet the requirements of the workplace and site environmental authority<br>• maintain work area to meet housekeeping standards |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Operate a Water Purification Process** |
| **Unit Code** | **IND DPP2 08 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down a water purification process to produce water to meet production requirements. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare the water purification equipment and process for operation | 1.1. Materials are confirmed and available to meet operating ***requirements***.<br>1.2. Cleaning and sanitizing requirements and status are identified and confirmed.<br>1.3. Batch records or process ***documentation*** is completed.<br>1.4. Processing/operating parameters are entered and/or confirmed as required to meet safety and production requirements.<br>1.5. Equipment performance is checked and adjusted as required.<br>1.6. Pre-start checks are carried out as required by workplace requirements. |
| 2. Operate and monitor the water purification process | 2.1. The process is started and operated according to workplace ***procedures***.<br>2.2. ***Equipment*** is monitored to identify variation in operating conditions from those indicated in workplace documents or standard operating procedures.<br>2.3. Variation in ***equipment operation*** is identified and maintenance requirements are reported according to workplace reporting requirements.<br>2.4. The process is monitored to confirm that purified water is produced to specification.<br>2.5. Out-of-specification process outcomes are identified, rectified and/or reported to maintain the process within specification.<br>2.6. The work area is maintained according to housekeeping standards.<br>2.7. Work is conducted in accordance with workplace environmental guidelines.<br>2.8. Workplace records are maintained according to workplace recording requirements. |
| 3. Shut down the water purification process | 3.1. The appropriate shut down procedure is identified.<br>3.2. The process is shut down according to workplace procedures. |

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| | 3.3. Workplace and/or batch documentation is completed.<br>3.4. Maintenance requirements are identified and reported according to workplace reporting requirements. |

| Variable | Range |
|---|---|
| Legislative requirements | are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity<br>When applied to the pharmaceutical industry, relevant GMP codes apply in place of the Ethiopian Food Standards Code and reference to food safety is replaced by GMP |
| Documentation | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production schedules and instructions<br>• manufacturers' advice<br>• standard forms and reports |
| Policies and procedures | Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Water purification equipment | may include:<br>• dosing equipment<br>• storage tanks<br>• pumps<br>• valves<br>• distillation systems<br>• reverse osmosis systems<br>• UV light<br>• deionisation plants<br>• softeners<br>• carbon tanks<br>• filters |
| Water produced | may include, but is not limited to:<br>• purified water<br>• deionised water<br>• Reverse Osmosis (RO)<br>• distilled water<br>• Water For Injection (WFI) |
| Purification processes | are typically continuous processes |
| Operation of equipment and processes | typically requires:<br>• the use of process control panels and systems |

| Evidence Guide | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• conduct pre-start checks on machinery used for water purification<br>• start, operate, monitor and adjust process equipment to achieve required quality outcomes<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• safely shut down equipment<br>• apply food safety procedures. |
| Underpinning Knowledge and Attitudes | Knowledge of:<br>• purpose and basic principles of the water purification process, including methods used to purify water appropriate to workplace requirements<br>• basic operating principles of equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation<br>• services required and action to take if services are not available<br>• the flow of the water purification process and the effect of outputs on downstream processes<br>• quality characteristics to be achieved by the water purification process<br>• quality requirements of inputs to the purification process and the effect of variation on process performance<br>• operating requirements and parameters and corrective action required where operation is outside specified operating parameters<br>• typical equipment faults and related causes, including following troubleshooting and problem solving guidelines, and recognizing signs and symptoms of faulty equipment and early warning signs of potential problems<br>• basic operating principles of process control as appropriate, including the relationship between control panels and systems and the physical equipment<br>• methods used to monitor the water purification process, such as inspecting, measuring and testing as required by the process<br>• inspection or test points (control points) in the water purification process and the related procedures and recording requirements |

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| | • Good Manufacturing Practice (GMP)/food safety requirements (as appropriate) associated with the purification process and related control measures<br>• common causes of variation and corrective action required<br>• Operational Health and Safety (OHS) hazards and controls<br>• requirements of different shutdowns as appropriate to the water purification process and workplace production requirements, including emergency and routine shutdowns<br>• isolation, lock out and tag out procedures and responsibilities<br>• cleaning and sanitation procedures<br>• procedures and responsibility for reporting production and performance information<br>• environmental issues and controls relevant to the water purification process<br>• sampling and testing associated with water purification process monitoring and control where relevant<br>• routine maintenance procedures where relevant |
| Underpinning Skills | Ability to:<br>• access workplace information to identify water purification process requirements<br>• select, fit and use personal protective clothing and/or equipment<br>• respond appropriately to hazards, including chemical spills<br>• confirm supply of necessary materials and services<br>• conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for water purification process requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational<br>• start, operate, monitor and adjust water purification process equipment to achieve required outcomes, including monitoring control points and conducting inspections as required to confirm process remains within specification, such as:<br>➢ flow rates<br>➢ pressure<br>➢ operation of dosing equipment (where relevant)<br>➢ alarms<br>• monitor supply and flow of materials to and from the water purification process<br>• take corrective action in response to out-of-specification results<br>• maintain a purification system free of physical, chemical and biological contaminants |

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| | • respond to and/or report equipment failure within level of responsibility<br>• locate emergency stop functions on equipment<br>• follow isolation and lock out/tag out procedures as required to take water purification process and related equipment off-line in preparation for cleaning/back flushing and/or maintenance within level of responsibility<br>• carry out cleaning, sanitizing, regenerating and back-flushing as required<br>• complete workplace records as required<br>• maintain work area to meet housekeeping standards<br>• collect samples and conduct tests according to enterprise procedures<br>• conduct routine maintenance according to enterprise procedures<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
|---|---|
| **Unit Title** | **Operate a Bulk Liquid Transfer** |
| **Unit Code** | **IND DPP2 09 0613** |
| **Unit Descriptor** | This unit covers the skills and knowledge required to receive and load out bulk liquid product or raw materials. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare bulk liquid transfer equipment and process for operation | 1.1. Tank locations, product/materials holdings and capacities are identified.<br>1.2. Actual and recorded holding levels are confirmed.<br>1.3. Condition of tank farm and related equipment is inspected and maintenance requirements are identified and reported according to workplace reporting requirements.<br>1.4. Transfer equipment settings and operating parameters are selected to meet safety and transfer requirements.<br>1.5. Checks, tests or other materials/product clearance procedures are followed prior to transfer as required by workplace.<br>1.6. Priorities for materials transfer are established to match intakes/transfers to storage capacity and production requirements. |
| 2. Transfer bulk liquid materials | 2.1. The transfer process is started and operated according to workplace procedures.<br>2.2. The transfer process is monitored to confirm correct location selection, quantities and equipment settings.<br>2.3. Bulk liquid materials/product is transferred to the required location/storage facility.<br>2.4. Workplace housekeeping standards are maintained.<br>2.5. Work is conducted in accordance with workplace environmental guidelines.<br>2.6. Workplace records are maintained according to workplace recording requirements. |
| 3. Complete transfer operations | 3.1. Valves and related equipment settings are correctly positioned to complete transfer operation.<br>3.2. Product/materials are purged from lines.<br>3.3. Equipment is cleaned and prepared for further transfer.<br>3.4. Information on the transfer operation is recorded according to workplace reporting requirements.<br>3.5. Maintenance requirements are identified and reported according to workplace reporting requirements. |

| Variable | Range |
|---|---|
| Policies and procedures | Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Legislative requirements | Legislative requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes the labelling, weights and measures legislation; and legislation covering food safety, environmental management, occupational health and safety, anti-discrimination and equal opportunity. |
| Workplace information | Workplace information may include Standard Operating Procedures (SOPs), specifications, production schedules and instructions, manufacturers' advice, standard forms and reports |
| Transfer of bulk liquid materials | Transfer of bulk liquid materials typically involves the use of process control screens and systems |
| Typical bulk liquid transfer equipment | Typical bulk liquid transfer equipment includes tanks, vessels, pumps, valves, gauges, pipe work, screens and filters, and tank dipping and measurement instrumentation |
| Confined spaces | Where cleaning tanks or silos requires entry to confined spaces, the relevant National Occupational Health and Safety Commission and/or state health and safety authorities assessment criteria and methods prescribed must also be met |
| Monitoring the condition of bulk liquid transfer equipment | Monitoring the condition of bulk liquid transfer equipment may include visually inspecting to identify leaks or faulty valve operation, and checking operation/accuracy of gauges and related measuring equipment |

| Evidence Guide | |
|---|---|
| Critical aspects of Competence | Evidence of ability to:<br>• confirm transfer requirements<br>• conduct pre-start checks on equipment used for transfer<br>• start, operate, monitor and adjust process to achieve required quality outcomes<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• apply food safety procedures |
| Underpinning Knowledge and Attitudes | Knowledge of:<br>• Bulk liquid materials storage facilities layout and related management systems<br>• Basic operating principles of the system and equipment used. This includes an understanding of the features of the bulk liquid handling system such as whether it is based on gravity and/or pressurized feed, and related performance aspects. It also includes an understanding of the equipment used which typically includes sensors, valves, pumps, pipe work and |

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| | other related equipment that controls the flow and transfer of bulk liquid materials, equipment operating capacity and the status and purpose of guards<br>• Planning and scheduling systems and responsibilities to prioritize materials transfer processes. This includes an understanding of the characteristics of materials received and related storage requirements, production requirements and storage capacities<br>• Signs and symptoms of faulty equipment and early warning signs of potential problems<br>• Operating parameters and corrective action required where operation is outside specified operating parameters<br>• OHS hazards and controls. This includes emergency procedures to respond to hazardous situations such as spills<br>• Product inspection procedures within level of responsibility<br>• Clearance procedures. This may include relevant test methods and action required if results are not within specification or clearance is not provided<br>• Contamination risks and controls. This includes an understanding of cross-contamination risks, product compatibility and storage requirements<br>• Isolation, lock out and tag out procedures and responsibilities<br>• Environmental issues associated with bulk liquid materials transfer. This includes consequences of spills and appropriate control/containment procedures<br>• Recording requirements and procedures<br>• Basic operating principles of process control where relevant. This includes the relationship between control panels and systems and the physical equipment<br>• Sampling and test procedures where relevant<br>• Routine maintenance procedures where relevant<br>• Cleaning procedures where relevant |
| Underpinning Skills | Ability to:<br>• Access workplace information relating to materials transfer requirements<br>• Select, fit and use personal protective clothing and/or equipment<br>• Inspect equipment for signs of wear. Examples of typical sensory inspections include visual inspections to detect leaks, listening for unusual noises and or vibrations in pumps and checking gauges and meters<br>• Use workplace records and systems to confirm tank holdings and capacities and determine appropriate source/destination holding facilities. This typically involves use of computer-based systems. It may also involve verifying by physically inspecting storage facilities and checking materials/product compatibility |

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| | • Plan and sequence transfer process to meet storage capacity and production requirements<br>• Prepare equipment for materials transfer. This may involve confirming that equipment is clean, lines are purged, isolation or lockouts are cancelled as required, any scheduled maintenance has been completed and safety guards/equipment are correctly positioned<br>• Carry out procedures to confirm liquid bulk product/materials meet quality requirements. This may involve conducting tests or getting clearance documentation from laboratory/quality personnel<br>• Operate and monitor transfer process to confirm that correct quantities are transferred at the required times, to the required locations. This may include monitoring pump loads and flow rates and filter/strainer condition<br>• Respond to and/or report equipment failure within level of responsibility<br>• Locate emergency stop functions on equipment<br>• Complete transfer operations. This may include purging lines and selecting appropriate equipment/system settings<br>• Complete records of product/materials transfer as required<br>• Maintain work area to meet housekeeping standards<br>• Use process control and scheduling systems, screens and panels according to enterprise procedures<br>• Take and record product/materials samples and conduct tests according to enterprise procedures<br>• Conduct routine maintenance according to enterprise procedures<br>• Clean transfer equipment. This may require entry to confined spaces. Where this is the case, appropriate certification requirements must also be met<br>• Use oral communication skills / language competence to fulfill the job role as specified by the organization including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• Work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Apply Sampling Procedures** |
| **Unit Code** | **IND DPP2 10 0613** |
| **Unit Descriptor** | This unit covers the skills and knowledge required to receive and load out bulk liquid product or raw materials. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare bulk liquid transfer equipment and process for operation | 1.1. Tank locations, product/materials holdings and capacities are identified.<br>1.2. Actual to recorded holding levels are confirmed.<br>1.3. Condition of tank farm and related equipment is inspected and maintenance requirements are identified and reported according to workplace reporting requirements.<br>1.4. Transfer equipment settings and operating parameters are selected to meet safety and transfer requirements.<br>1.5. Checks, tests or other materials/product clearance procedures are followed prior to transfer as required by workplace.<br>1.6. Priorities for materials transfer are established to match intakes/transfers to storage capacity and production requirements. |
| 2. Transfer bulk liquid materials | 2.1. The transfer process is started and operated according to workplace procedures.<br>2.2. The transfer process is monitored to confirm correct location selection, quantities and equipment settings.<br>2.3. Bulk liquid materials/product is ***transferred*** to the required location/storage facility.<br>2.4. Workplace housekeeping standards are maintained.<br>2.5. Work is conducted in accordance with workplace environmental guidelines.<br>2.6. Workplace records are maintained according to workplace recording requirements. |
| 3. Complete transfer operations | 3.1. Valves and related equipment settings are correctly positioned to complete transfer operation.<br>3.2. Product/materials are purged from lines.<br>3.3. ***Equipment*** is cleaned and prepared for further transfer.<br>3.4. ***Information*** on the transfer operation is recorded according to workplace reporting requirements.<br>3.5. Maintenance requirements are identified and reported according to workplace reporting requirements. |

| Variable | Range |
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| Transfer of bulk liquid materials | typically involves the use of process control screens and systems |
| Typical bulk liquid transfer equipment | includes tanks, vessels, pumps, valves, gauges, pipe work, screens and filters, and tank dipping and measurement instrumentation |
| Workplace information | may include Standard Operating Procedures (SOPs), specifications, production schedules and instructions, manufacturers' advice, standard forms and reports |
| Policies and procedures | Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Legislative requirements | Are typically reflected in procedures and specifications. Legislation relevant to this industry includes the labeling, weights and measures legislation; and legislation covering food safety, environmental management, occupational health and safety, anti-discrimination and equal opportunity. |
| Confined spaces | Where cleaning tanks or silos requires entry to confined spaces, the relevant National Occupational Health and Safety Commission and/or state health and safety authorities assessment criteria and methods prescribed must also be met |
| Monitoring the condition of bulk liquid transfer equipment | equipment may include visually inspecting to identify leaks or faulty valve operation, and checking operation/accuracy of gauges and related measuring equipment |

| Evidence Guide | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• confirm transfer requirements<br>• conduct pre-start checks on equipment used for transfer<br>• start, operate, monitor and adjust process to achieve required quality outcomes<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• apply food safety procedures |
| Underpinning Knowledge and Attitudes | Knowledge of:<br>• Bulk liquid materials storage facilities layout and related management systems<br>• Basic operating principles of the system and equipment used. This includes an understanding of the features of the bulk liquid handling system such as whether it is based on gravity and/or pressurized feed, and related performance aspects. It also includes an understanding of the equipment used which typically includes sensors, valves, pumps, pipe work and |

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| | other related equipment that controls the flow and transfer of bulk liquid materials, equipment operating capacity and the status and purpose of guards<br>• Planning and scheduling systems and responsibilities to prioritize materials transfer processes. This includes an understanding of the characteristics of materials received and related storage requirements, production requirements and storage capacities<br>• Signs and symptoms of faulty equipment and early warning signs of potential problems<br>• Operating parameters and corrective action required where operation is outside specified operating parameters<br>• OHS hazards and controls. This includes emergency procedures to respond to hazardous situations such as spills<br>• Product inspection procedures within level of responsibility<br>• Clearance procedures. This may include relevant test methods and action required if results are not within specification or clearance is not provided<br>• Contamination risks and controls. This includes an understanding of cross-contamination risks, product compatibility and storage requirements<br>• Isolation, lock out and tag out procedures and responsibilities<br>• Environmental issues associated with bulk liquid materials transfer. This includes consequences of spills and appropriate control/containment procedures<br>• Recording requirements and procedures<br>• Basic operating principles of process control where relevant. This includes the relationship between control panels and systems and the physical equipment<br>• Sampling and test procedures where relevant<br>• Routine maintenance procedures where relevant<br>• Cleaning procedures where relevant |
| Underpinning Skills | Ability to:<br>• Access workplace information relating to materials transfer requirements<br>• Select, fit and use personal protective clothing and/or equipment<br>• Inspect equipment for signs of wear. Examples of typical sensory inspections include visual inspections to detect leaks, listening for unusual noises and or vibrations in pumps and checking gauges and meters<br>• Use workplace records and systems to confirm tank holdings and capacities and determine appropriate source/destination holding facilities. This typically involves use of computer-based systems. It may also involve verifying by physically inspecting storage facilities and checking materials/product compatibility |

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| | • Plan and sequence transfer process to meet storage capacity and production requirements<br>• Prepare equipment for materials transfer. This may involve confirming that equipment is clean, lines are purged, isolation or lockouts are cancelled as required, any scheduled maintenance has been completed and safety guards/equipment are correctly positioned<br>• Carry out procedures to confirm liquid bulk product/materials meet quality requirements. This may involve conducting tests or getting clearance documentation from laboratory/quality personnel<br>• Operate and monitor transfer process to confirm that correct quantities are transferred at the required times, to the required locations. This may include monitoring pump loads and flow rates and filter/strainer condition<br>• Respond to and/or report equipment failure within level of responsibility<br>• Locate emergency stop functions on equipment<br>• Complete transfer operations. This may include purging lines and selecting appropriate equipment/system settings<br>• Complete records of product/materials transfer as required<br>• Maintain work area to meet housekeeping standards<br>• Use process control and scheduling systems, screens and panels according to enterprise procedures<br>• Take and record product/materials samples and conduct tests according to enterprise procedures<br>• Conduct routine maintenance according to enterprise procedures<br>• Clean transfer equipment. This may require entry to confined spaces. Where this is the case, appropriate certification requirements must also be met<br>• Use oral communication skills / language competence to fulfil the job role as specified by the organisation including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• Work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Operate a Production Process** |
| **Unit Code** | **IND DPP2 11 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to set up, monitor, and adjust a production process or sub-system. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare the equipment and process for operation | 1.1. Materials are confirmed and available to meet operating requirements.<br>1.2. Cleaning and maintenance requirements and status are identified and confirmed.<br>1.3. Machine components and related attachments are fitted and adjusted to meet operating requirements.<br>1.4. Processing/operating parameters are entered as required to meet safety and production requirements.<br>1.5. Equipment performance is checked and adjusted as required.<br>1.6. Pre-start checks are carried out as required by workplace requirements. |
| 2. Operate and monitor the process | 2.1. The process is started and operated according to workplace procedures.<br>2.2. Equipment is monitored to identify variation in operating conditions.<br>2.3. Variation in ***equipment operation*** is identified and maintenance requirements are reported according to workplace reporting requirements.<br>2.4. The process is monitored to confirm that specifications are met.<br>2.5. Out-of-specification product/process outcomes are identified, rectified and/or reported to maintain the process within specification.<br>2.6. The work area is maintained according to housekeeping standards.<br>2.7. Work is conducted in accordance with workplace environmental guidelines.<br>2.8. Workplace records are maintained according to workplace recording requirements. |
| 3. Shut down the process | 3.1. The appropriate ***shutdown procedure*** is identified.<br>3.2. The process is shut down according to workplace procedures. |

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| | 3.3. Maintenance requirements are identified and reported according to workplace reporting requirements. |

| Variable | **Range** |
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| Shutdown procedures | may include:<br>• cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew and /or use of CIP and COP) |
| Operation of equipment and processes | may require:<br>• the use of process control panels and systems |
| Policies and procedures | Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Legislative requirements | Are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity |
| Workplace information | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production schedules and instructions<br>• manufacturers' advice<br>• standard forms and reports |
| Production process or sub-system | may require operation of a series of related items of equipment to achieve the process outcome |
| Services | May need to be confirmed. These depend on the nature of the process. Typical examples include:<br>• power<br>• steam<br>• water<br>• vacuum<br>• compressed and instrumentation air |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• conduct pre-start checks on machinery used for production process<br>• start, operate, monitor and adjust process equipment to achieve required quality outcomes<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• safely shut down equipment & apply food safety procedures. |

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| Underpinning Knowledge and Attitudes | Knowledge of:<br>• purpose and basic principles of the process<br>• basic operating principles of equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications and the purpose and location of sensors and related feedback instrumentation<br>• services required and action to take if services are not available<br>• the flow of this process and the effect of outputs on downstream processes<br>• quality characteristics to be achieved by the process<br>• quality requirements of materials and effect of variation on process performance<br>• operating requirements, parameters and corrective action required where operation is outside specified operating parameters<br>• typical equipment faults and related causes, including recognition of signs and symptoms of faulty equipment and early warning signs of potential problems<br>• methods used to monitor the production process, such as inspecting, measuring and testing as required by the process<br>• inspection or test points (control points) in the process and the related procedures and recording requirements<br>• contamination/food safety risks associated with the process and related control measures<br>• common causes of variation and corrective action required<br>• Operational Health and Safety (OHS) hazards and controls, including limitations of protective clothing and equipment relevant to the work process<br>• requirements of different shutdowns as appropriate to the process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage<br>• isolation, lock out and tag out procedures and responsibilities<br>• procedures and responsibility for reporting production and performance information<br>• environmental issues and controls relevant to the process, including waste/rework collection and handling procedures related to the process<br>• basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment<br>• product/process changeover procedures and responsibilities where relevant<br>• sampling and testing associated with process monitoring and control where relevant<br>• routine maintenance procedures where relevant |

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| | • cleaning and sanitation procedures where relevant |
| Underpinning Skills | Ability to:<br>• access workplace information to identify processing requirements<br>• select, fit and use personal protective clothing and/or equipment<br>• confirm supply of necessary materials and services<br>• conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for processing requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational<br>• start, operate, monitor and adjust process equipment to achieve required outcomes, including monitoring control points and conducting inspections as required to confirm process remains within specification<br>• monitor supply and flow of materials to and from the process<br>• take corrective action in response to out-of-specification results<br>• respond to and/or report equipment failure within level of responsibility<br>• locate emergency stop functions on equipment<br>• follow isolation and lock out/tag out procedures as required to take process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility<br>• complete workplace records as required<br>• maintain work area to meet housekeeping standards<br>• use process control systems according to enterprise procedures<br>• demonstrate batch/product changeovers according to enterprise procedures (may not apply to some continuous operations)<br>• collect samples and conduct tests according to enterprise procedures<br>• conduct routine maintenance according to enterprise procedures<br>• clean and sanitize equipment according to enterprise procedures<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |

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| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Operate a Butter Churning and Oil Production Process** |
| **Unit Code** | **IND DPP2 12 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down butter churning and butter oil/ Anhydrous Milk Fat (AMF) processes to produce sweet cream butter product to specifications and for the preparation of butter oil from either cream or melted butter. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare the butter churning and butter oil equipment and process for operation | 1.1 ***Materials*** are confirmed and available to meet operating requirements.<br>1.2 Cleaning and maintenance requirements and status are identified and confirmed.<br>1.3. Machine components and related attachments are fitted and adjusted to meet operating requirements.<br>1.4 Processing/operating parameters are entered as required to meet safety and production requirements.<br>1.5 ***Equipment*** performance is checked and adjusted as required.<br>1.6 Pre-start checks are carried out as required by workplace requirements. |
| 2. Operate and monitor the butter churning and the butter oil process operation | 2.1 The process is started and operated according to workplace procedures.<br>2.2 Equipment is monitored to identify variation in operating conditions.<br>2.3 Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements.<br>2.4 Each stage of the process is monitored to confirm that specifications are met.<br>2.5 Out-of-specification product/process outcomes are identified, rectified and/or reported to maintain the process within specification.<br>2.6 The work area is maintained according to housekeeping standards.<br>2.7. Work is conducted in accordance with workplace environmental guidelines.<br>2.8 Workplace records are maintained according to workplace recording requirements. |

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| 3. Shut down the butter churning process | 3.1. The appropriate shutdown procedure is identified.<br>3.2. The process is shut down according to workplace procedures.<br>3.3. Maintenance requirements are identified and reported according to workplace reporting requirements. |

| Variable | Range |
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| Materials | Materials used in butter churning may include:<br>• pasteurized cream<br>• salt<br>By-products may include:<br>• buttermilk<br>• wash water |
| Equipment | may include:<br>• butter churn<br>• augers<br>• separator<br>• Salter<br>• dehydrators (vacuum vessel)<br>• heat exchangers<br>• centrifugal separators<br>• homogenizers |
| Policies and procedures | Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Legislative requirements | Legislation relevant to this industry include:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity |
| Workplace information | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production schedules and instructions<br>• manufacturers' advice<br>• standard forms and reports |
| Products | produced using this process include:<br>• butter<br>• anhydrous milk fat (AMF)<br>• anhydrous butte roil<br>• butter oil<br>Phase inversion produces butter milk which is typically evaporated and dried (this unit does not cover this activity) |
| Production stages in butter and butter oil process | include:<br>• churning<br>• washing |

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| | • concentration<br>• phase inversion (using an homogenizer when working direct from cream and a melting and holding stage if using butter)<br>• final concentration<br>• neutralization<br>• polishing<br>• dehydration<br>• Fractionation and decholesterolisation may also be carried out |
| Shutdown procedures | may include cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew) |
| Operation of equipment and processes | Op may require:<br>• the use of process control panels and systems |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• conduct pre-start checks on machinery used for churning butter<br>• conduct pre-start checks on equipment used for butter oil process<br>• start, operate, monitor and adjust process equipment to achieve required quality outcomes<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• safely shut down equipment<br>• apply food safety procedures to work practices. |
| Underpinning Knowledge and Attitudes | Knowledge of:<br>• purpose and basic principles of the butter churning process, including product preservation and the types of additives/ingredients used in the process and understanding of the stages, process flow and phases produced<br>• basic operating principles of equipment, such as principles of centrifuges and principles of evaporation, main equipment components, status and purpose of guards, equipment operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation<br>• services required and action to take if services are not available<br>• the flow of the process and the effect of product output on downstream processes<br>• quality characteristics to be achieved by the process<br>• contamination/food safety risks associated with the process and related control measures<br>• requirements of in-feed materials and the effect of variation in material quality on process performance |

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| | • operating requirements and parameters and corrective action required where operation is outside specified operating parameters<br>• typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems<br>• techniques and methods used to monitor the production process, such as inspecting, measuring and testing as required by the process<br>• inspection or test points (control points) in the process and the related procedures and recording requirements<br>• common causes of variation and corrective action required, such as how earlier stages in the process could contribute to cloudy product<br>• Occupational Health and Safety (OHS) hazards and controls<br>• requirements of different shutdowns as appropriate to the process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage<br>• isolation, lock out and tag out procedures and responsibilities<br>• procedures and responsibility for reporting production and performance information<br>• environmental issues and controls relevant to the process, including waste collection and handling procedures related to the process<br>• basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment<br>• sampling and testing associated with process monitoring and control where relevant<br>• cleaning and sanitation procedures where relevant<br>• routine maintenance procedures where relevant<br>• batch /product/process changeover procedures and responsibilities where relevant |
| Underpinning Skills | Ability to:<br>• access workplace information to identify requirements for the process<br>• select, fit and use personal protective clothing and/or equipment<br>• confirm supply of necessary materials and services, such as confirming that characteristics of in-feed meet quality requirements<br>• conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lock outs as required, confirming that equipment is clean and correctly configured for processing requirements, positioning sensors and controls correctly, ensuring any scheduled |

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| | maintenance has been carried out, and confirming that all safety guards are in place and operational<br>• start, operate, monitor and adjust process equipment to achieve required outcomes, such as monitoring control points and conducting inspections as required to confirm process remains within specification. In butter oil; for example:<br>➢ for the phase inversion stage, this typically includes monitoring color<br>➢ for the oil concentration stage, this typically includes monitoring oil transparency:<br>✓ in a direct from cream process, it may involve checking homogenizer and centrifuge pressures, centrifuge operation and desludging<br>✓ for a butter process, the centrifugal separator pressures, and desludging and heat exchanger temperatures are also monitored<br>➢ for the neutralization stage, this typically includes monitoring water flow and temperatures, ph and caustic concentration<br>➢ for the polishing stage, this typically includes monitoring water temperatures and product appearance (e.g. clarity)<br>➢ for the dehydration stage, this typically includes monitoring operation of the centrifuge to flash off remaining moisture in oil<br>• monitor process, including:<br>➢ agitation speeds<br>➢ flow rates<br>➢ time/temperature<br>➢ ingredient addition systems<br>➢ equipment performance<br>• monitor supply and flow of materials to and from the process<br>• take corrective action in response to out-of-specification results<br>• respond to and/or report equipment failure within level of responsibility<br>• locate emergency stop functions on equipment<br>• follow isolation and lock out/tag out procedures as required to take process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility<br>• complete workplace records as required<br>• maintain work area to meet housekeeping standards<br>• use process control systems according to enterprise procedures<br>• collect samples and conduct tests according to enterprise procedures<br>• clean and sanitize equipment according to enterprise procedures |

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| | • conduct routine maintenance according to enterprise procedures<br>• carry out product/batch changeovers according to enterprise procedures<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce<br>• demonstrate batch/product changeovers according to enterprise procedures (may not apply to some continuous operations) |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Operate a Curd Production and Cutting Process** |
| **Unit Code** | **IND DPP2 13 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down a curd production and cutting process in cheese making. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare the curd production and cutting process for operation | 1.1. ***Materials*** are confirmed and available to meet operating requirements.<br>1.2. Cleaning and maintenance requirements and status are identified and confirmed.<br>1.3. Machine components and related attachments are fitted and adjusted to meet operating requirements.<br>1.4. Processing/operating parameters are entered as required to meet safety and production requirements.<br>1.5. Equipment performance is checked and adjusted as required.<br>1.6. Pre-start checks are carried out as required by workplace requirements. |
| 2. Operate and monitor the curd production and cutting process | 2.1. The process is started and operated according to workplace procedures.<br>2.2. Equipment is monitored to identify variation in operating conditions.<br>2.3. Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements.<br>2.4. The process is monitored to confirm that specifications are met.<br>2.5. Out-of-specification product/process outcomes are identified, rectified and/or reported to maintain the process within specification.<br>2.6. The work area is maintained according to housekeeping standards.<br>2.7. Work is conducted in accordance with workplace environmental standards.<br>2.8. Workplace records are maintained according to workplace recording requirements. |
| 3. Shut down the curd production and cutting process | 3.1. The appropriate ***shutdown procedure*** is identified.<br>3.2. The process is shut down according to workplace procedures. |

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| | 3.3. Maintenance requirements are identified and reported according to workplace reporting requirements. |

| Variable | Range |
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| Materials | used in curd production may include:<br>• milk and coagulants |
| Shutdown procedures | may include:<br>• cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew) |
| Legislative requirements | Legislation relevant to this industry includes<br>• the Food Standards Code including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity |
| Workplace information | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production schedules and instructions<br>• manufacturers' advice<br>• standard forms and reports |
| Curd production and cutting equipment | will depend on:<br>• the type of cheese products and may include vats |
| Operation of equipment and processes | may require:<br>• the use of process control panels and systems |
| Services | Are appropriate to the process to be operated. Typical examples include:<br>• power<br>• steam<br>• water<br>• vacuum<br>• compressed and instrumentation air |

| Evidence Guide | |
|---|---|
| Critical aspects of Competence | Evidence of ability to:<br>• conduct pre-start checks on equipment used for curd production and cutting<br>• start, operate, monitor and adjust process to achieve required quality outcomes<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• safely shut down equipment<br>• apply food safety procedures to work practices. |

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| Underpinning Knowledge and Attitudes | Knowledge of:<br>• purpose and basic principles of the curd production and cutting process, including the methods used to coagulate milk for cheese making<br>• basic operating principles of equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation<br>• the flow of the curd production and cutting process and the effect of product output on downstream processes<br>• stages and changes that occur during curd production, including physical and chemical changes that occur during curd production and cutting<br>• quality characteristics required for curd production and cutting<br>• factors that affect curd firmness<br>• contamination/food safety risks associated with the process and related control measures<br>• the effect of raw material characteristics on curd production and cutting<br>• operating requirements and parameters and corrective action required where operation is outside specified operating parameters<br>• typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems<br>• techniques used to monitor the curd production and cutting process, such as inspecting, measuring and testing as required by the process<br>• inspection or test points (control points) in the process and the related procedures and recording requirements<br>• common causes of variation and corrective action required<br>• Occupational Health and Safety (OHS) hazards and controls, including the limitations of protective clothing and equipment relevant to the work process<br>• requirements of different shutdowns as appropriate to the curd production and cutting process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage<br>• isolation, lock out and tag out procedures and responsibilities<br>• procedures and responsibility for reporting production and performance information<br>• environmental issues and controls relevant to the curd production and cutting process, including waste collection and handling procedures related to the process<br>• basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment |

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| | • sampling and testing associated with process monitoring and control where relevant<br>• routine maintenance procedures where relevant<br>• cleaning and sanitation procedures where relevant |
| Underpinning Skills | Ability to:<br>• access workplace information to identify curd production and cutting process requirements<br>• select, fit and use personal protective clothing and/or equipment<br>• confirm supply of necessary materials and services<br>• conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lock outs as required, confirming that equipment is clean and correctly configured for processing requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational<br>• start, operate, monitor and adjust curd production and cutting process equipment to achieve required outcomes, including monitoring control points and conducting inspections as required to confirm process remains within specification, such as:<br>➢ speeds<br>➢ flow rates<br>➢ time/temperature<br>➢ equipment performance<br>• monitor supply and flow of materials to and from the curd production and cutting process<br>• take corrective action in response to out-of-specification results<br>• conduct product/batch changeover<br>• respond to and/or report equipment failure within level of responsibility<br>• locate emergency stop functions on equipment<br>• follow isolation and lock out/tag out procedures as required to take curd production and cutting process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility<br>• prepare curd production and cutting equipment for cleaning<br>• complete workplace records as required<br>• maintain work area to meet housekeeping standards<br>• use process control systems according to enterprise procedures<br>• collect samples and conduct tests according to enterprise procedures<br>• conduct routine maintenance according to enterprise procedures |

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| | • clean and sanitize equipment according to enterprise procedures<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Operate a Fill, Seal and can Process** |
| **Unit Code** | **IND DPP2 14 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down a fill, seal, and a primary packaging process that fills product into cans and hermetically seals containers using a closer or seamier. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare the filling and sealing equipment and the closing process for operation | 1.1. Materials and packaging components/consumables are confirmed and available to meet operating requirements.<br>1.2. Cleaning and maintenance requirements and status are identified and confirmed.<br>1.3. Machine components and related attachments are fitted and adjusted to meet operating requirements.<br>1.4. Operating parameters are entered as required to meet safety and production requirements.<br>1.5. Equipment performance is checked and adjusted as required.<br>1.6. Pre-start checks are carried out as required by workplace requirements. |
| 2. Operate and monitor the filling and sealing process | 2.1. The process is started and operated according to workplace procedures.<br>2.2. Equipment is monitored to identify variation in operating conditions.<br>2.3. Variation in ***equipment operation*** is identified and maintenance requirements are reported according to workplace reporting requirements.<br>2.4. ***Packaging*** quality and seal integrity are monitored to confirm that specifications are met.<br>2.5 The process is monitored to confirm that filled and closed containers meet specifications.<br>2.6. Out-of-specification process outcomes are identified, rectified and/or reported to maintain the process within specification.<br>2.7. The work area is maintained according to housekeeping standards.<br>2.8. Work is conducted in accordance with workplace environmental guidelines.<br>2.9. Workplace records are maintained according to workplace recording requirements. |
| 3. Shut down the filling and sealing process | 3.1. The appropriate ***shutdown procedure*** is identified.<br>3.2. The process is shut down according to workplace procedures.<br>3.3. Maintenance requirements are identified and reported. |

| Variable | Range |
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| Operation of equipment and processes | may require:<br>• the use of process control panels and systems |
| Packaging | may include:<br>• vacuum packing<br>• Modified Atmosphere Packaging (MAP) |
| Shutdown procedures | may include:<br>• cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew) |
| Policies and procedures | Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Legislative requirements | Are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity |
| Workplace information | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production schedules and instructions<br>• batch/recipe instructions<br>• manufacturers' advice<br>• standard forms and reports |
| Filling and sealing equipment | may include:<br>• pumps<br>• fillers, including aseptic bottle fillers<br>• hermetic sealers<br>• bag fillers<br>• aseptic packaging<br>• seamers<br>• level detection equipment<br>• conveyors<br>Related processes depend on product requirements and may include:<br>• product preparation equipment, such as mixers, blenders, carbonators, heat exchangers, chillers and crystallizers |
| Services | Are appropriate to the process to be operated. Typical examples include:<br>• power<br>• steam<br>• water<br>• vacuum<br>• inert gas (where gas flushing is used)<br>• compressed and instrumentation air |

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| Product preparation | can include:<br>• acidifying<br>• brining or syruping<br>• exhausting |
| Product | may be hot or cold filled |
| Can seam components | include:<br>• body hook<br>• end hook<br>• countersink<br>• seam thickness<br>• seam juncture and overlap |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• conduct pre-start checks on machinery used for filling, closing and sealing<br>• start, operate, monitor and adjust process equipment to achieve required quality outcomes<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• safely shut down equipment<br>• apply food safety procedures. |
| Underpinning Knowledge and Attitudes | • purpose and basic principles of filling, closing and sealing, including the purpose, properties, requirements and characteristics required of packaging materials used and the method used to fill and seal product (where methods involve vacuum or map packaging, it includes an understanding of the effect of modified atmosphere on product shelf-life) ,hermetic sealing and properties of containers used for this purpose,<br>• product and packaging coding requirements and related legal requirements including product weight<br>• basic operating principles of filling, closing and sealing equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, the purpose and location of sensors and related feedback instrumentation, and services required for operation of equipment used in the workplace<br>• the flow of processes supplying the filling and sealing process and the effect of outputs on downstream processes<br>• quality characteristics and requirements of filling , closing and sealing, such as quality requirements of product and packaging components/consumables, requirements of filling including fill levels and weights, requirements of seal formation and integrity, and integrity testing procedures, within level of responsibility for inspection where required |

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| | • effect of raw material characteristics on filling and seaming<br>• methods and techniques used to monitor the process, such as inspecting, measuring and testing as required by the process<br>• inspection or test points (control points) in the process and the related procedures and recording requirements<br>• operating requirements and parameters and corrective action required where operation is outside specified operating parameters, including procedures to clear a breach and restart following a crash or jam up as appropriate<br>• typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems<br>• common causes of variation and corrective action required, including the effect of variation in both product and packaging components/consumables on filling and sealing performance, such as the effect of temperature variation on the filling process<br>• food safety hazards and risks associated with filling, seaming and sealing and related control measures<br>• Occupational Health and Safety (OHS) hazards and controls<br>• requirements of different shutdowns as appropriate to the process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage<br>• isolation, lock out and tag out procedures and responsibilities<br>• product/process changeover procedures and responsibilities<br>• procedures and responsibility for reporting production and performance information<br>• environmental issues and controls relevant to the process, including waste/rework collection and handling procedures related to the process<br>• basic operating principles of equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation, relationship between control panels and systems and the physical equipment<br>• aseptic processing requirements where relevant<br>• sampling and testing procedures such as seam inspection procedures where relevant<br>• cleaning and sanitation procedures where relevant<br>• quality parameters for cans and ends<br>• methods used to prepare product for filling<br>• effect of process variables, such as headspace, fill temperature and vacuum on the process |
| Underpinning Skills | Ability to:<br>• access workplace information to identify processing requirements |

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| | • select, fit and use personal protective clothing and/or equipment<br>• confirm supply of necessary materials, packaging components/consumables, product and services<br>• conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters to suit filling and closing requirements, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for packaging, filling and seaming requirements, loading packaging components/consumables, positioning sensors and controls correctly, ensuring any scheduled maintenance has been completed, and confirming that all safety guards are in place and operational<br>• start, operate, monitor and adjust the filling and sealing process equipment to achieve required outcomes, including monitoring control points and conducting inspections as required to confirm process remains within specification, such as:<br>➢ flow rates and line speed/throughput<br>➢ product visual appearance, weights and volumes<br>➢ fill levels, vacuum and head space<br>➢ times and temperatures, including product and sealing and filling temperatures<br>➢ supply of packaging components/consumables<br>➢ packaging quality and seal integrity, such as testing seal integrity<br>• take corrective action in response to out-of-specification results<br>• respond to and/or report equipment failure within level of responsibility<br>• locate emergency stop functions on equipment<br>• follow isolation and lock out/tag out procedures as required to take process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility<br>• prepare equipment for cleaning and maintenance<br>• prepare/condition product for filling and packing as required<br>• demonstrate product/batch/process changeovers and shift handover procedures<br>• complete workplace records as required<br>• maintain work area to meet housekeeping standards<br>• use process control systems according to enterprise procedures<br>• demonstrate aseptic filling, closing and sealing according to enterprise procedures<br>• collect samples and conduct tests according to enterprise procedures |

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| | • clean and sanitize equipment according to enterprise procedures<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce<br>• monitor supply and flow of materials to and from the process<br>• start, monitor and adjust the equipments to confirm alignment and formation of the end process<br>• monitor control points and conduct inspections related to the seaming, closing and sealing process, including confirming that coding is correct |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Operate a Cheese Pressing and Molding Process** |
| **Unit Code** | **IND DPP2 15 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down a pressing and molding process to produce cheese to specifications. |

| Elements | Performance Criteria |
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| 1. Prepare the pressing and molding equipment and process for operation | 1.1. ***Materials*** are confirmed and available to meet operating requirements.<br>1.2. Cleaning and maintenance requirements and status are identified and confirmed.<br>1.3. Machine components and related attachments are fitted and adjusted to meet operating requirements.<br>1.4. Processing/operating parameters are entered as required to meet safety and production requirements.<br>1.5. Equipment performance is checked and adjusted as required.<br>1.6. Pre-start checks are carried out as required by workplace requirements. |
| 2. Operate and monitor the pressing and molding process | 2.1. The process is started and operated according to workplace procedures.<br>2.2. Equipment is monitored to identify variation in operating conditions.<br>2.3. Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements.<br>2.4. The process is monitored to confirm that specifications are met.<br>2.5. Out-of-specification product/process outcomes are identified, rectified and/or reported to maintain the process within specification.<br>2.6. The work area is maintained according to housekeeping standards.<br>2.7. Work is conducted in accordance with workplace environmental guidelines.<br>2.8. Workplace records are maintained according to workplace recording requirements. |
| 3. Shut down the pressing and molding process | 3.1. The appropriate ***shutdown procedure*** is identified.<br>3.2. The process is shut down according to workplace procedures. |

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| | 3.3. Maintenance requirements are identified and reported according to workplace reporting requirements. |

| Variable | Range |
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| Materials | Materials used in cheese pressing and molding may include:<br>• curd<br>• salt |
| Shutdown procedures | may include:<br>• cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew) |
| Policies and procedures | Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Legislative requirements | are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity |
| Workplace information | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production schedules and instructions<br>• manufacturers' advice<br>• standard forms and reports |
| Cheese pressing and molding equipment | may include:<br>• block forming towers<br>• trolley table<br>• tunnel press<br>• pneumatic press<br>• hydraulic press<br>• screw press and moulds |
| Operation of equipment and processes | may require:<br>• the use of process control panels and systems |
| Services | Are appropriate to the process to be operated. Typical examples include:<br>• power<br>• steam<br>• water<br>• vacuum<br>• compressed and instrumentation air |

| Evidence Guide | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• conduct pre-start checks on machinery used for pressing and molding cheese |

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| | • start, operate, monitor and adjust process equipment to achieve required quality outcomes<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• safely shut down equipment<br>• apply food safety procedures to work practices. |
| Underpinning Knowledge and Attitudes | Knowledge of:<br>• purpose and basic principles of the pressing and molding process<br>• basic operating principles of equipment, such as main equipment components, equipment status and purpose of guards, operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation<br>• the flow of the pressing and molding process and the effect of product output on downstream processes<br>• quality characteristics to be achieved by the pressing and mounding process<br>• effect of raw material characteristics on pressing and mounding process performance<br>• contamination/food safety risks associated with the process and related control measures<br>• operating requirements and parameters and corrective action required where operation is outside specified operating parameters<br>• typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems<br>• techniques used to monitor the pressing and molding process, such as inspecting, measuring and testing as required by the process<br>• inspection or test points (control points) in the process and the related procedures and recording requirements<br>• common causes of variation and corrective action required<br>• Occupational Health and Safety (OHS) hazards and controls<br>• requirements of different shutdowns as appropriate to the process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage<br>• isolation, lock out and tag out procedures and responsibilities<br>• procedures and responsibility for reporting production and performance information<br>• environmental issues and controls relevant to the process, including waste collection and handling procedures related to the process |

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| | • basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment<br>• sampling and testing associated with process monitoring and control where relevant<br>• product/batch changeover procedures where relevant<br>• routine maintenance procedures where relevant<br>• cleaning and sanitation procedures where relevant |
| Underpinning Skills | Ability to:<br>• access workplace information to identify pressing and molding processing requirements<br>• select, fit and use personal protective clothing and/or equipment<br>• confirm supply of necessary materials and services<br>• conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for pressing and molding processing requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational<br>• start, operate, monitor and adjust pressing and molding process equipment to achieve required outcomes, including monitoring control points and conducting inspections as required to confirm process remains within specification, such as:<br>➢ equipment speeds<br>➢ flow rates<br>➢ time/temperature<br>➢ equipment performance<br>• monitor supply and flow of materials to and from the pressing and molding process<br>• take corrective action in response to out-of-specification results<br>• respond to and/or report equipment failure within level of responsibility<br>• locate emergency stop functions on equipment<br>• follow isolation and lock out/tag out procedures as required to take pressing and molding process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility<br>• complete workplace records as required<br>• maintain work area to meet housekeeping standards<br>• use process control systems according to enterprise procedures |

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| | • collect samples and conduct tests according to enterprise procedures<br>• conduct product/batch changeovers according to enterprise procedures<br>• conduct routine maintenance according to enterprise procedures<br>• clean equipment according to enterprise procedures<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Operate a Packaging Process** |
| **Unit Code** | **IND DPP2 16 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down a packaging process or sub-system. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare the equipment and process for operation | 1.1. ***Packaging*** components/consumables, materials and items to be packaged are confirmed and available to meet operating requirements.<br>1.2. Cleaning and maintenance requirements and status are identified and confirmed.<br>1.3. Machine components and related attachments are fitted and adjusted to meet operating requirements.<br>1.4. Operating parameters are entered as required to meet safety and production requirements.<br>1.5. Materials, product and packaging components/consumables are loaded or positioned as required to meet packaging requirements.<br>1.6. Equipment performance is checked and adjusted as required.<br>1.7. Pre-start checks are carried out as required by workplace requirements. |
| 2. Operate and monitor the process | 2.1. The process is started and operated according to workplace procedures.<br>2.2. ***Equipment*** is monitored to identify variation in operating conditions.<br>2.3. Variation in ***equipment operation*** is identified and maintenance requirements are reported according to workplace reporting requirements.<br>2.4. The process is monitored to confirm that specifications are met.<br>2.5. Out-of-specification process outcomes are identified, rectified and/or reported to maintain the process within specification.<br>2.6. The work area is maintained according to housekeeping standards.<br>2.7. Work is conducted in accordance with workplace environmental guidelines.<br>2.8. Workplace records are maintained according to workplace recording requirements. |

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| 3. Shut down the process | 3.1. The appropriate ***shutdown procedure*** is identified.<br>3.2. The process is shut down according to workplace procedures.<br>3.3. Maintenance requirements are identified and reported according to workplace reporting requirements. |

| **Variable** | **Range** |
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| Packaging | may include:<br>• vacuum packing<br>• Modified Atmosphere Packaging (MAP)<br>• blister packaging or over wrapping |
| Typical equipment | that may form a packaging sub-system includes:<br>• conveyor systems<br>• filling<br>• sealing<br>• wrapping<br>• thermo-form equipment<br>• case packers<br>• bundlers<br>• ink jet coders<br>• labellers<br>• palletisers<br>• shrink wrappers<br>• strappers |
| Operation of equipment and processes | may require:<br>• the use of process control panels and systems |
| Shutdown procedures | may include:<br>• cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew) |
| Policies and procedures | Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Legislative requirements | Are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labelling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity |
| Workplace information | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production schedules and instructions<br>• manufacturers' advice<br>• standard forms and reports |

| Evidence Guide | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• conduct pre-start checks on machinery used for packing<br>• start, operate, monitor and adjust process equipment to achieve required quality outcomes<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• safely shut down equipment<br>• apply food safety procedures. |
| Underpinning Knowledge and Attitudes | Evidence of ability to:<br>• conduct pre-start checks on machinery used for packing<br>• start, operate, monitor and adjust process equipment to achieve required quality outcomes<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records as required<br>• apply safe work practices and identify OHS hazards and controls<br>• safely shut down equipment<br>• apply food safety procedures. |
| Underpinning Skills | Ability to:<br>• access workplace information to identify packaging requirements<br>• select, fit and use personal protective clothing and/or equipment<br>• confirm supply of necessary packaging components/consumables, materials and services<br>• conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, setting coders and printers, selecting appropriate equipment settings and/or related parameters, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for packaging requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been completed, and confirming that all safety guards are in place and operational<br>• start, operate, monitor and adjust packaging equipment to achieve required outcomes., such as packaging components/consumables and/or product, and monitoring control points (e.g. weights, codes, placement, glue temperatures, alignment and appearance, configuration and seal integrity) as required to confirm process remains within specification<br>• monitor supply and flow of materials to and from the process |

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| | • take corrective action in response to out-of-specification results<br>• respond to and/or report equipment failure within level of responsibility<br>• locate emergency stop functions on equipment<br>• follow isolation and lock out/tag out procedures as required to take packaging equipment off-line in preparation for cleaning and/or maintenance within level of responsibility<br>• demonstrate batch/process changeovers<br>• complete workplace records as required<br>• maintain work area to meet housekeeping standards<br>• use process control systems according to enterprise procedures<br>• integrity testing of packaging according to enterprise procedures<br>• carry out routine maintenance according to enterprise procedures<br>• clean and sanitize equipment according to enterprise procedures<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Handle Dangerous Goods/Hazardous Substances** |
| **Unit Code** | **IND DPP2 17 0613** |
| **Unit Descriptor** | This unit involves the skills and knowledge required to handle dangerous goods and hazardous substances, including identifying requirements for working with dangerous goods and/or hazardous substances; confirming site incident procedures; and selecting handling techniques. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify requirements for working with dangerous goods and/or hazardous substances | 1.1 Dangerous goods and/or hazardous substances are identified from information including class labels, manifests and other documentation.<br>1.2 Storage requirements for hazardous substances and/or dangerous goods are identified and applied.<br>1.3 Legislative requirements for hazardous substances and/or dangerous goods are known and used to plan work activities.<br>1.4 Handling procedures for different classes and characteristics of goods are observed.<br>1.5 Confirmation is sought from relevant personnel where dangerous goods or hazardous materials do not appear to be appropriately marked. |
| 2. Confirm site incident procedures | 2.1 Incident reporting processes are identified.<br>2.2 Emergency equipment is located and checked according to workplace procedures and statutory regulations.<br>2.3 Emergency procedures are identified and confirmed. |
| 3. Select handling techniques | 3.1 Load handling and shifting procedures are selected in accordance with identified requirements for particular goods.<br>3.2 Handling equipment is checked for conformity with workplace requirements and manufacturers guidelines.<br>3.3 Where relevant, suitable signage is checked for compliance with workplace procedures. |

| Variable | Range |
|---|---|
| The dangerous goods may be handled in a range of work environments by day or night and may be: | • for short-term storage<br>• for long-term storage<br>• in transit |
| Customers may be: | • internal or external |

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| Workplace environment may include: | • movement of equipment<br>• movement of goods<br>• materials and vehicular traffic |
| Requirements for work may include: | • site restrictions and procedures<br>• use of safety and personal protective equipment<br>• communications equipment<br>• specialized lifting and/or handling equipment<br>• incident breakdown procedures<br>• authorities and permits<br>• hours of operations<br>• noise restrictions<br>• additional gear and equipment<br>• segmentation procedures<br>• emergency procedures, including response to spillage/leaks, evacuation and fire fighting |
| Hazards may include: | • hazardous or dangerous materials<br>• contamination of, or from, materials being handled<br>• noise, light, energy sources<br>• stationary and moving machinery, parts or components<br>• service lines<br>• spills, leakages, ruptures<br>• fire or ignition<br>• dust/vapors |
| Hazard management is: | • consistent with the principle of hierarchy of control with elimination, substitution, isolation and engineering control measures being selected before safe working practices and personal protective equipment |
| Consultative processes may involve: | • other employees and supervisors<br>• suppliers, potential customers and existing clients<br>• representatives of regulatory authorities with jurisdiction over OHS, dangerous goods and hazardous substances<br>• management and union representatives<br>• industrial relations and OHS specialists<br>• other maintenance, professional or technical staff |
| Personnel in the work area may include: | • workplace personnel<br>• site visitors<br>• contractors<br>• official representatives |
| Identification of goods may be from: | • material safety data sheets<br>• packaging labels<br>• manifests<br>• stock lists |
| Depending on the type of organization concerned and the local terminology | • company procedures<br>• enterprise procedures<br>• organizational procedures<br>• established procedures |

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| used, workplace procedures may include: | |
| Personal protective equipment may include: | • gloves<br>• safety headwear and footwear<br>• safety glasses<br>• mask and respirator<br>• protective clothing<br>• breathing apparatus |
| Information/documents may include: | • goods identification numbers and codes<br>• manifests, stock lists, packaging labels, bar codes, stock lists<br>• goods and container identification<br>• workplace procedures and policies concerning the handling of dangerous goods and hazardous substances<br>• supplier and/or client instructions<br>• material safety data sheets (MSDS)<br>• relevant legislation, codes, regulations and related documentation concerning the handling of dangerous goods and hazardous substances<br>• award, enterprise bargaining agreement, other industrial arrangements<br>• standards and certification requirements<br>• quality assurance procedures<br>• emergency procedures pertaining to dangerous goods and hazardous substances |
| Applicable regulations and legislation may include: | • relevant Ethiopian and state/territory regulations relating to the handling of dangerous goods and hazardous substances<br>• current Ethiopian and international regulations and codes of practice for the handling and transport of dangerous goods and hazardous substances, including:<br>➢ Ethiopian and International Dangerous Goods Codes<br>➢ Ethiopian Marine Orders and the International Maritime Dangerous Goods Code<br>➢ IATA Dangerous Goods by Air regulations<br>➢ Ethiopian and International Explosives Codes<br>• all relevant Ethiopian Standards<br>• relevant state/territory OHS legislation<br>• workplace relations regulations<br>• equal employment opportunity and affirmative action legislation<br>• equal opportunity legislation<br>• relevant state/territory environmental protection legislation |

| Evidence Guide | |
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| Critical Aspects of Competence | The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of:<br>• identifying dangerous goods/hazardous substances (from labels, signs and other relevant identification criteria)<br>• identifying and selecting the safely requirements for handling dangerous goods/hazardous substances<br>• maintaining workplace records and documentation<br>• determining (any) required permits<br>• identifying job and site hazards and planning work to minimize risks<br>• selecting appropriate equipment and work systems including personal protection equipment<br>• estimating weight and dimensions of load and any special requirements<br>• identifying and assessing handling and storage precautions and requirements for dangerous goods/hazardous substances |
| Underpinning Knowledge and Attitudes | • All relevant regulations and codes concerning the handling of dangerous goods and hazardous substances<br>• Application of relevant aspects of current Ethiopian Dangerous Goods Code and relevant Ethiopian Standards<br>• Permit and license requirements<br>• Workplace procedures for handling and storing dangerous goods/hazardous substances<br>• Problems that may arise during the handling of dangerous goods and hazardous substances and actions that should be taken to prevent or solve them<br>• Risks when handling dangerous goods and hazardous substances and related precautions to control the risk<br>• Equipment applications, capacities, configurations, safety hazards and control mechanisms<br>• Housekeeping standards procedures required in the workplace |
| Underpinning Skills | • Communicate effectively with others when handling dangerous goods and hazardous substances<br>• Read and interpret instructions, procedures, regulations, information and signs relevant to the handling of dangerous goods and hazardous substances<br>• Identify containers and goods coding, markings and, where applicable, emergency information panels for the mode of transport storage selected<br>• Interpret and follow operational instructions and prioritize work<br>• Complete documentation related to work activities<br>• Operate electronic communication equipment to required protocol |

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| | • Work collaboratively with others when handling dangerous goods and hazardous substances<br>• Adapt appropriately to cultural differences in the workplace, including modes of behavior and interactions with others<br>• Promptly report and/or rectify any identified problems, faults or malfunctions that may occur when handling dangerous goods and hazardous substances in accordance with regulatory requirements and workplace procedures<br>• Plan own work including predicting consequences and identifying improvements<br>• Implement contingency plans for unanticipated situations that may arise when handling dangerous goods and hazardous substances<br>• Recognize hazards and apply precautions and required action to minimize, control or eliminate hazards that may exist during the handling of dangerous goods and hazardous substances<br>• Monitor work activities in terms of planned schedule<br>• Modify activities depending on differing operational contingencies, risk situations and environments<br>• Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment<br>• Operate and adapt to differences in equipment in accordance with standard operating procedures<br>• Select and use required personal protective equipment conforming to industry and OHS standards |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
|---|---|
| **Unit Title** | **Produce Simple Word Processed Documents** |
| **Unit Code** | **IND DPP2 18 0613** |
| **Unit Descriptor** | This unit describes the performance outcomes, skills and knowledge required to correctly operate word processing applications in the production of workplace documents.<br>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare to produce documents | 1.1. Safe work practices are used to ensure ***ergonomic***, ***work organization***, energy and resource ***conservation requirements*** are addressed.<br>1.2. ***Document*** purpose, audience and presentation requirements are identified, and clarified with relevant personnel as required.<br>1.3. ***Organizational*** and task ***requirements*** are identified for document layout and design. |
| 2. Produce documents | 2.1. Document ***is formatted*** using appropriate ***software functions*** to adjust page layout to meet information requirements, in accordance with organizational style and presentation requirements.<br>2.2. System features are used to identify and manipulate ***screen display options and controls***.<br>2.3. Manuals, user documentation and online help are used to overcome problems with document presentation and production. |
| 3. Finalize documents | 3.1. Ensure final document is previewed, ***checked***, adjusted and ***printed*** in accordance with organizational and task requirements.<br>3.2. Ensure document is prepared within ***designated time lines*** and organizational requirements.<br>3.3. ***Document is named and stored*** in accordance with organizational requirements and exit application without information loss/damage. |

| Variable | Range |
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| Ergonomic requirements may include: | • avoiding radiation from computer screens<br>• chair height, seat and back adjustment<br>• document holder<br>• footrest<br>• keyboard and mouse position<br>• lighting |

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| | • noise minimization<br>• posture<br>• screen position<br>• workstation height and layout |
| Work organization requirements may include: | • exercise breaks<br>• mix of repetitive and other activities<br>• rest periods |
| Conservation requirements may include: | • disposing of non-confidential waste paper in recycling bins<br>• double-sided paper use<br>• re-using paper for rough drafts (observing confidentiality requirements)<br>• utilizing power-save options for equipment |
| Documents may include: | • agendas<br>• briefing papers<br>• envelopes<br>• faxes<br>• labels<br>• letters<br>• mail merges<br>• memos<br>• minutes<br>• short reports<br>• simple one-page flyers<br>• standard form letters |
| Organizational requirements may include: | • company color scheme<br>• company logo<br>• consistent corporate image<br>• content restrictions<br>• established guidelines and procedures for document production<br>• house styles<br>• observing copyright legislation<br>• organization name, time, date, document title, filename etc. in header/footer<br>• templates |
| Formatting may include: | • alignment on page<br>• columns<br>• company logo/letterhead<br>• enhancements to format - borders, patterns and colors<br>• enhancements to text - color, size, orientation<br>• headers/footers<br>• margins<br>• page orientation |
| Software functions may include: | • default settings<br>• document protection<br>• grammar check |

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| | • headers/footers<br>• indent<br>• line spacing<br>• page numbers<br>• page set up<br>• paragraph formatting<br>• spell check<br>• tabs<br>• text formatting |
| Screen display options and controls may include: | • layout view<br>• maximize/minimize<br>• normal view<br>• page view<br>• print preview<br>• ruler<br>• toolbars<br>• zoom percentage |
| Checking may include: | • accuracy of information<br>• consistency of layout<br>• ensuring instructions with regard to content and format have been followed<br>• grammar<br>• proofreading<br>• spelling, electronically and manually |
| Printing may include: | • basic print settings<br>• multiple copies<br>• odd or even pages<br>• print preview<br>• printer setup<br>• specified pages<br>• whole document |
| Designated time lines may include: | • organizational time line e.g. deadline requirements<br>• time line agreed with internal/external client<br>• time line agreed with supervisor/person requiring document/s |
| Naming and storing documents may include: | • appropriate file type<br>• authorized access<br>• file names according to organizational procedure e.g. numbers rather than names<br>• file names which are easily identifiable in relation to the content<br>• file/ directory names which identify the operator, author, section, date etc.<br>• filing locations<br>• organizational policy for backing up files<br>• organizational policy for filing hard copies of documents<br>• security |

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| | • storage in folders/sub-folders<br>• storage on hard/floppy disk drives, CD-ROM, tape back-up |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Evidence of the following is essential:<br>• knowledge of simple word processing functions, standard document layout and design principles<br>• production of a minimum of three simple, word processed documents |
| Underpinning Knowledge and Attitudes | • formatting styles and their effect on formatting, readability and appearance of documents<br>• purpose, use and function of word processing software<br>• organizational requirements for ergonomics, work periods and breaks, and conservation techniques<br>• organizational style guide |
| Underpinning Skills | • communication skills to clarify document requirements<br>• editing and proofreading skills to check own work for accuracy<br>• keyboarding skills to enter text and numerical data<br>• literacy skills to read and understand organization's procedures, and to use basic models to produce a range of correspondence<br>• problem-solving skills to solve routine problems |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
|---|---|
| **Unit Title** | **Participate in Workplace Communication** |
| **Unit Code** | **IND DPP2 19 0613** |
| **Unit Descriptor** | This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements. |

| Elements | Performance Criteria |
|---|---|
| 1. Obtain and convey workplace information | 1.1 Specific and relevant information is accessed from ***appropriate sources***.<br>1.2 Effective questioning, active listening and speaking skills are used to gather and convey information.<br>1.3 Appropriate ***medium*** is used to transfer information and ideas.<br>1.4 Appropriate non- verbal communication is used.<br>1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed.<br>1.6 Defined workplace procedures for the location and ***storage*** of information are used.<br>1.7 Personal interaction is carried out clearly and concisely. |
| 2. Participate in workplace meetings and discussions | 2.1 Team meetings are attended on time.<br>2.2 Own opinions are clearly expressed and those of others are listened to without interruption.<br>2.3 Meeting inputs are consistent with the meeting purpose and established ***protocols***.<br>2.4 ***Workplace interactions*** are conducted in a courteous manner.<br>2.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are asked and responded to.<br>2.6 Meetings outcomes are interpreted and implemented. |
| 3. Complete relevant work related documents | 3.1 Range of ***forms*** relating to conditions of employment is completed accurately and legibly.<br>3.2 Workplace data is recorded on standard workplace forms and documents.<br>3.3 Basic mathematical processes are used for routine calculations.<br>3.4 Errors in recording information on forms/ documents are identified and properly acted upon.<br>3.5 Reporting requirements to supervisor are completed according to organizational guidelines. |

| Variable | Range |
|---|---|
| Appropriate sources | May include but not limited to:<br>• Team members<br>• Suppliers<br>• Trade personnel<br>• Local government<br>• Industry bodies |
| Medium | May include but not limited to:<br>• Memorandum<br>• Circular<br>• Notice<br>• Information discussion<br>• Follow-up or verbal instructions<br>• Face to face communication |
| Storage | May include but not limited to:<br>• Manual filing system<br>• Computer-based filing system |
| Protocols | May include but not limited to:<br>• Observing meeting<br>• Compliance with meeting decisions<br>• Obeying meeting instructions |
| Workplace interactions | May include but not limited to:<br>• Face to face<br>• Telephone<br>• Electronic and two way radio<br>• Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams |
| Forms | May include but not limited to:<br>• Personnel forms, telephone message forms, safety reports |

| Evidence Guide | |
|---|---|
| Critical Aspects of Competency | Demonstrates skills and knowledge to:<br>• Prepare written communication following standard format of the organization<br>• Access information using communication equipment<br>• Make use of relevant terms as an aid to transfer information effectively<br>• Convey information effectively adopting the formal or informal communication |
| Underpinning Knowledge and Attitudes | • Effective communication<br>• Different modes of communication<br>• Written communication<br>• Organizational policies<br>• Communication procedures and systems<br>• Technology relevant to the enterprise and the individual's work responsibilities |

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| Underpinning Skills | Demonstrate skills to:<br>• Follow simple spoken language<br>• Perform routine workplace duties following simple written notices<br>• Participate in workplace meetings and discussions<br>• Complete work related documents<br>• Estimate, calculate and record routine workplace measures<br>• Do basic mathematical processes of addition, subtraction, division and multiplication<br>• relate to people of social range in the workplace<br>• Gather and provide information in response to workplace Requirements |
| Resource Implications | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Work in Team Environment** |
| **Unit Code** | **IND DPP2 20 0613** |
| **Unit Descriptor** | This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team. |

| Elements | Performance Criteria |
|---|---|
| 1. Describe team role and scope | 1.1 The ***role and objective of the team*** are identified from available ***sources of information***.<br>1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources. |
| 2. Identify own role and responsibility within team | 2.1 Individual role and responsibilities within the team environment are identified.<br>2.2 Roles and responsibility of other team members are identified and recognized.<br>2.3 Reporting relationships within team and external to team are identified. |
| 3. Work as a team member | 3.1 Effective and appropriate forms of communications used and interactions undertaken with team members who contribute to known team activities and objectives.<br>3.2 Effective and appropriate contributions are made to complement team activities and objectives, based on individual skills and competencies and ***workplace context***.<br>3.3 Protocols are observed in reporting using standard operating procedures.<br>3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members. |

| Variable | Range |
|---|---|
| Role and objective of team | May include but not limited to:<br>• Work activities in a team environment with enterprise or specific sector<br>• Limited discretion, initiative and judgment maybe demonstrated on the job, either individually or in a team environment |
| Sources of information | May include but not limited to:<br>• Standard operating and/or other workplace procedures<br>• Job procedures<br>• Machine/equipment manufacturer's specifications and instructions<br>• Organizational or external personnel<br>• Client/supplier instructions |

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| | • Quality standards<br>• OHS and environmental standards |
| Workplace context | May include but not limited to:<br>• Work procedures and practices<br>• Conditions of work environments<br>• Legislation and industrial agreements<br>• Standard work practice including the storage, safe handling and disposal of chemicals<br>• Safety, environmental, housekeeping and quality guidelines |

| **Evidence Guide** | |
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| Critical Aspects of competence | Demonstrates skills and knowledge to:<br>• Operate in a team to complete workplace activity<br>• Work effectively with others<br>• Convey information in written or oral form<br>• Select and use appropriate workplace language<br>• Follow designated work plan for the job<br>• Report outcomes |
| Underpinning Knowledge and Attitude | Demonstrate knowledge of:<br>• Communication process<br>• Team structure<br>• Team roles<br>• Group planning and decision making |
| Underpinning Skills | Demonstrate skills to:<br>• Communicate appropriately, consistent with the culture of the workplace |
| Resource Implications | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
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| **Unit Title** | **Develop Business Practice** |
| **Unit Code** | **IND DPP2 21 0613** |
| **Unit Descriptor** | This unit specifies the outcomes required to establish a business operation from a planned concept. It includes researching the feasibility of establishing a business operation, planning the setting up of the business, implementing the plan and reviewing operations once commenced. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify business opportunity | 1.1 ***Business opportunities*** are investigated and identified<br>1.2 Feasibility study is undertaken to determine likely ***business viability***<br>1.3 Market research on product or service is undertaken<br>1.4 Assistance with feasibility study of ***specialist and relevant parties*** is sought as required<br>1.5 Impact of emerging or changing technology including e-commerce, on business operations are evaluated<br>1.6 Practicability of business opportunity is assessed in line with perceived risks, returns sought and resources available<br>1.7 Business plan is completed for operation |
| 2. Identify personal business skills | 2.1 Financial and business skills available are identified and taken into account when business opportunities are researched<br>2.2 ***Personal skills/attributes*** are assessed and matched against those perceived as necessary for a particular business opportunity<br>2.3 ***Business risks*** are identified and assessed according to resources available and personal preferences |
| 3. Plan for establishment of business operation | 3.1 Business structure and operations are determined and documented.<br>3.2 Procedures are developed and documented to guide operations.<br>3.3 Financial backing is secured for business operation.<br>3.4 Business legal and regulatory requirements are identified and complied.<br>3.5 ***Human and physical resources*** required to commence business operation are determined.<br>3.6 Recruitment strategies are developed and implemented. |
| 4. Implement establishment plan | 4.1 Marketing of business operation is undertaken.<br>4.2 Physical and human resources are obtained to implement business operation. |

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| | 4.3 ***Operational unit*** is established to support and coordinate business operation.<br>4.4 Monitoring process is developed and implemented for managing operation.<br>4.5 ***Legal documents*** are carefully maintained and relevant records are kept and updated to ensure validity and accessibility.<br>4.6 Contractual procurement rights for goods and services including ***contracts with relevant people****,* negotiated and secured as required in accordance with the business plan.<br>4.7 Options for leasing/ownership of business premises identified and contractual arrangements are completed in accordance with the business plan. |
| 5. Review implementation process | 5.1 Review process for implementation of business operation is developed and implemented.<br>5.2 Improvements in business operation and associated management process are identified.<br>5.3 Identified improvements are implemented and monitored for effectiveness. |

| **Variable** | **Range** |
|---|---|
| Business opportunities | May include but not limited to:<br>• expected financial viability<br>• skills of operator<br>• amount and types of finance available<br>• returns expected or required by owners<br>• likely return on investment<br>• finance required<br>• lifestyle issues |
| Business viability | May include but not limited to:<br>• opportunities available<br>• market competition<br>• timing/ cyclical considerations<br>• skills available<br>• resources available<br>• location and/ or premises available<br>• risk related to a particular business opportunity, especially<br>• in regard to Occupational Health and Safety and<br>• environmental considerations |
| Specialist and relevant parties | May include but not limited to:<br>• Chamber of commerce<br>• Financial planners and financial institution representatives, business planning specialists and marketing specialists<br>• accountants |

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| | • lawyers and providers of legal advice<br>• government agencies<br>• industry/trade associations<br>• online gateways and business brokers/business consultants |
| Personal skills/attributes | May include but not limited to:<br>• technical and/ or specialist skills<br>• business knowledge and skills<br>• entrepreneurship and willingness to take risks |
| Business risks | May include but not limited to:<br>• occupational health and safety and environmental<br>• considerations<br>• relevant legislative requirements<br>• security of investment<br>• market competition<br>• security of premises/ location<br>• supply and demand<br>• resources available |
| Human and physical resources | May include but not limited to:<br>• software and hardware<br>• office premises<br>• communications equipment<br>• specialist services through outsourcing, contracting and<br>• consultancy<br>• staff and vehicles |
| Operational unit | May include but not limited to:<br>• office location staffed with required personnel and equipped to service and support business<br>• home-based site or other location such as leased or owned property |
| Legal documents | May include but not limited to:<br>• partnership agreements, constitution documents, statutory books for companies (Register of Members, Register of Directors and Minute Books), Certificate of Incorporation, Franchise Agreements and financial documentation, appropriate software for financial records<br>• recordkeeping including personnel, financial, taxation, OHS and environmental |
| Contracts with relevant people | owners, suppliers, employees, landlords, agents, distributors, customers or any person with whom the business has, or seeks to have, a performance-based relationship |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Demonstrates skills and knowledge in:<br>• that a business operation has been planned and implemented from initial research into feasibility of the business and completion of the plan, through to implementing the plan and commencing operations |

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| | • the ability to evaluate the results of research and assess the likely viability and practicability of a business opportunity, taking into account the current business/market climate and resources available |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• Federal and regional government legislative requirements affecting business operations, especially in regard to Occupational Health and Safety (OHS), Equal Employment Opportunity (EEO), industrial relations and anti-discrimination<br>• Technical or specialist skills relevant to the business operation<br>• Financing options<br>• Business systems and operations<br>• Relevant marketing, management, sales and financial concepts<br>• Methods for researching business opportunities<br>• Principles of risk management relevant to the business<br>• Methods of identifying relevant specialist services to complement the business<br>• Forms and administrative systems<br>• Services available and charges<br>• Planning and control systems (sales,<br>• Advertising and promotion, distribution and logistics<br>• Financial recording systems<br>• Legal rights and responsibilities<br>• Record keeping duties<br>• Operational factors relating to the business (provision of professional services, products) |
| Underpinning Skills | Demonstrate skills of:<br>• Literacy skills to interpret legal requirements, company policies and procedures and immediate, day-to-day demands<br>• Marketing skills<br>• Business planning skills<br>• Entrepreneurial skills<br>• Problem-solving skills<br>• OHS skills<br>• Time management skills<br>• Belief in services and products offered by the business<br>• Communication skills including questioning, clarifying, reporting, and giving and receiving constructive feedback<br>• Technical and analytical skills to interpret business documents, reports and financial statements and projections<br>• Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities<br>• Problem solving skills to develop contingency plans<br>• Using computers and software packages to record and manage data and to produce reports |

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| | • Literacy skills to enable interpretation of business information, numeracy skills for data analysis to aid research<br>• Research skills to identify a business opportunity and to conduct a feasibility study<br>• Analytical skills to assess personal attributes and to identify business risks<br>• Observation skills for identifying appropriate people, resources and to monitor work |
| Resource Implications | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level II | |
|---|---|
| **Unit Title** | **Standardize and Sustain 3S** |
| **Unit Code** | **IND DPP2 22 0613** |
| **Unit Descriptor** | This unit of competence covers the knowledge, skills and attitudes required by worker to standardize and sustain 3S to his/her workplace. It covers responsibility for the day- to-day operations of the workplace and ensuring that continuous improvements of Kaizen elements are initiated and institutionalized. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare for work. | 1.1 Work instructions are used to determine job requirements, including method, material and equipment.<br>1.2 Job specifications are read and interpreted following working manual.<br>1.3 ***OHS requirements***, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work.<br>1.4 ***Safety equipment and tools*** are identified and checked for safe and effective operation.<br>1.5 ***Tools and equipment*** are prepared and used to implement 3S. |
| 2. Standardize 3S. | 2.1 Plan is prepared and used to standardize 3S activities.<br>2.2 ***Tools and techniques*** to standardize 3S are prepared and implemented based on ***relevant procedures***.<br>2.3 Checklists are followed for standardize activities and ***reported*** to ***relevant personnel***.<br>2.4 The workplace is kept to the specified standard.<br>2.5 Problems are avoided by standardizing activities. |
| 3. Sustain 3S. | 3.1 Plan is prepared and followed to standardize 3S activities.<br>3.2 ***Tools and techniques*** to sustain 3S are discussed, prepared and implemented based on relevant procedures.<br>3.3 Workplace is inspected regularly for compliance to specified standard and sustainability of 3S techniques.<br>3.4 Workplace is cleaned up after completion of job and before commencing next job or end of shift.<br>3.5 Situations are identified where compliance to standards is unlikely and actions specified in procedures are taken.<br>3.6 Improvements are recommended to lift the level of compliance in the workplace.<br>3.7 Checklists are followed to sustain activities and reported to relevant personnel.<br>3.8 Problems are avoided by sustaining activities. |

| Variable | Range |
|---|---|
| OHS requirements | May include but not limited to:<br>• Are to be in accordance with legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances.<br>• Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices.<br>• Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with workplace organization.<br>• Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation. |
| Safety equipment and tools | May include but not limited to:<br>• dust masks / goggles<br>• glove<br>• working cloth<br>• first aid<br>• safety shoes |
| Tools and equipment | May include but not limited to:<br>• paint<br>• hook<br>• sticker<br>• signboard<br>• nails<br>• shelves<br>• chip wood<br>• sponge<br>• broom<br>• pencil<br>• shadow board/ tools board |
| Tools and techniques | May include but not limited to:<br>• 5S Job Cycle Charts<br>• Visual 5S<br>• The Five Minute 5S<br>• Standardization level checklist<br>• 5S checklist<br>• The five Whys and one How approach(5W1H)<br>• Suspension<br>• Incorporation<br>• Use Elimination |

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| Relevant procedures | May include but not limited to:<br>• Assign 3S responsibilities<br>• Integrate 3S duties into regular work duties<br>• Check on 3S maintenance level<br>• OHS measures such as signage, symbols / coding and labeling of workplace and equipment<br>• Creating conditions to sustain your plans<br>• Roles in implementation |
| Reporting | May include but not limited to:<br>• verbal responses<br>• data entry into enterprise database<br>• brief written reports using enterprise report formats |
| Relevant personnel | May include but not limited to:<br>• supervisors, managers and quality managers<br>• administrative, laboratory and production personnel<br>• internal/external contractors, customers and suppliers |
| Tools and techniques | May include but not limited to:<br>• 5S slogans<br>• 5S posters<br>• 5S photo exhibits and storyboards<br>• 5S newsletter<br>• 5S maps<br>• 5S pocket manuals<br>• 5S department/benchmarking tours<br>• 5S months<br>• 5S audit<br>• Awarding system<br>• Big cleaning day<br>• Patrolling system may include:<br>➢ Top management Patrol<br>➢ 5S Committee members and Promotion office Patrol<br>➢ Mutual patrol<br>➢ Self-patrol<br>➢ Checklist patrol<br>➢ Camera patrol |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Demonstrates skills and knowledge to:<br>• Discuss the relationship between Kaizen elements.<br>• Standardize and sustain 3S activities by applying appropriate tools and techniques. |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• Elements of Kaizen<br>• Ways to improve Kaizen elements<br>• Benefits of improving kaizen elements<br>• Relationship between Kaizen elements<br>• The fourth pillar of 5S |

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| | • Benefits of standardizing and sustaining 3S<br>• Procedures for standardizing and sustaining 3S activities<br>• Tools and techniques to sustain 3S<br>• Relevant Occupational Health and Safety (OHS) and environment requirements<br>• Plan and report<br>• Method of communication |
| Underpinning Skills | Demonstrates skills of:<br>• improving Kaizen elements by applying 5S<br>• standardizing and sustaining procedures and techniques to avoid problems<br>• technical drawing<br>• procedures to standardizing 3S activities<br>• analyzing and preparing shop layout of the workplace<br>• standardizing and sustaining checklists<br>• preparing and implementing tools and techniques to sustain 3S<br>• working with others<br>• reading and interpreting documents<br>• observing situations<br>• solving problems by applying 5S<br>• communication skills<br>• preparing labels, slogans, etc.<br>• gathering evidence by using different means<br>• using Kaizen board properly in accordance the procedure<br>• reporting activities and results using report formats |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

# NTQF Level III

| Occupational Standard: Dairy products Processing Level III | |
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| **Unit Title** | **Set up a Production or Packaging Line for Operation** |
| **Unit Code** | **IND DPP3 01 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to set up multiple production or packaging processes and/or conduct multiple process changeovers for operation by others. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare for line setup | 1.1. Materials are confirmed and available to meet production requirements.<br>1.2. Equipment and related accessories are confirmed, available and fit for use to meet production requirements.<br>1.3. Tools and equipment required for line setup are made available, operational and fit for use as per manufacturer's manual.<br>1.4. Processing parameters and settings are identified to meet production or packaging requirements. |
| 2. Set up the line for operation | 2.1. Cleaning ***requirements and status*** and maintenance requirements and status are identified and confirmed.<br>2.2. Equipment is inspected to confirm condition.<br>2.3. Machine settings are selected or adjusted as required to meet safety and production requirements.<br>2.4. Processing or packaging parameters are entered as required to meet production requirements.<br>2.5. ***Equipment adjustment*** **and** performance is checked and adjusted as required.<br>2.6. Pre-start checks are carried out as required by workplace requirements.<br>2.7. Line setup is completed to match production or packaging schedule and operating requirements.<br>2.8. The line is ready and safe to operate and any maintenance requirements are reported according to workplace reporting requirements and ***workplace information.***<br>2.9. Work is conducted in accordance with workplace environmental guidelines.<br>2.10. Relevant personnel are notified of setup completion. |

| Variable | Range |
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| Equipment adjustment | may include:<br>• limited use of hand tools, such as Allen keys and screwdrivers, within level of responsibility |

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| Workplace information | may include:<br>• Standard Operating Procedures (SOPs)<br>• specifications<br>• production schedules and instructions<br>• standard forms and reports |
| Policies and procedures | Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements |
| Legislative requirements | Are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS,<br>When applied to the pharmaceutical industry, relevant Good Manufacturing Practice (GMP) codes apply in place of the Food Standards Code and reference to food safety is replaced by GMP |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Must demonstrate knowledge and skills competence to:<br>• conduct pre-start checks on machinery used for production to determine cleaning, maintenance and operation readiness<br>• determine production parameters and requirements<br>• set up line according to production requirements<br>• take corrective action in response to typical faults and inconsistencies<br>• complete workplace records and communicate line status with other personnel as required<br>• apply safe work practices and identify OHS hazards and controls<br>• safely shut down equipment<br>• apply food safety procedures |
| Underpinning Knowledge and Attitudes | Demonstrate Knowledge of:<br>• basic operating principles of equipment and related accessories, including equipment adjustment points, range and location/alignment requirements of sensors and related feedback instruments, and status and purpose of guards<br>• operating capacities of equipment used in the work area, such as different types of equipment and/or components as required by processing operations<br>• nature of setup/changeover requirements, such as product compatibility and related cleaning requirements, impact of variation in materials or product on setup requirements, equipment and/or attachment changeovers related to given products<br>• typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems |

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| | • pre-start checks required by setup/changeover<br>• related processes and personnel dependent on line setup, and communication responsibilities<br>• isolation, lock out and tag out procedures and responsibilities<br>• Occupational Health and Safety (OHS) hazards and controls<br>• procedures and responsibility for reporting equipment performance information<br>• basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment<br>• routine maintenance requirements and procedures where relevant |
| Underpinning Skills | Demonstrate skills to:<br>• access production/packing schedule and related information to identify line setup/changeover requirements, such as checking product sequencing and compatibility, confirming that the required cleaning and/or sanitation has occurred and required packaging components and consumables are available as appropriate<br>• select, fit and use personal protective clothing and/or equipment<br>• confirm supply of necessary equipment and related attachments, materials and services for production<br>• confirm supply of necessary equipment and services to carry out setup operations<br>• set and/or adjust equipment to meet production/packaging requirements, including selecting the required parameters or equipment settings, and changing processing set points as required<br>• position safety guards and cancel isolation/lockouts ready for operation<br>• confirm that sensors and related feedback instruments are correctly positioned and operational<br>• operate equipment to confirm equipment setup and make final adjustments as required<br>• time setup activities to meet production requirements<br>• advise affected work areas/personnel of completion of setup<br>• maintain work area to meet housekeeping standards<br>• load and/or position materials/ingredients/product and/or packaging consumables according to enterprise procedures<br>• use the control panel/system to set and adjust equipment components according to enterprise procedures<br>• conduct routine maintenance according to enterprise procedures<br>• use oral communication skills/language competence to fulfil the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor |

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| | • work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Identify Equipment Faults** |
| **Unit Code** | **IND DPP3 02 0613** |
| **Unit Descriptor** | This unit requires the application of planning, technical knowledge and skills to check and isolate routine and non-routine equipment faults used in production and report on the status of equipment. It applies to all sectors of the industry.<br>This competency is typically performed by operators demonstrating some relevant theoretical knowledge and using a range of well-developed skills requiring some discretion and judgment. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify scope of operational check. | 1.1 Equipment components and operating systems are identified and classified.<br>1.2 Appropriate tests and procedures are matched to the equipment operating systems.<br>1.3 Special test procedures and parameters are identified in manufacturer's specifications and procedures.<br>1.4 The operating principles of hydraulic, pneumatic, mechanical and electrical/electronic systems are explained as related to workplace equipment.<br>1.5 Measures are implemented to control identified hazards in line with procedures and duty of care.<br>1.6 Checks on the physical condition of equipment are observed and undertaken as per procedures.<br>1.7 Preliminary observations are recorded.<br>1.8 Test procedures are discussed with appropriate personnel and necessary permission obtained where required. |
| 2. Plan operational checks. | 2.1 Specifications and notes are checked from preliminary observations and areas to be clarified identified.<br>2.2 Testing sequence/s noting areas is planned where results and observations should be recorded.<br>2.3 Safe area for testing is identified.<br>2.4 Arrangements are made for any additional resources (including other employees). |
| 3. Check unit through full operational range. | 3.1 Testing, observing relevant safety and operational requirements are undertaken.<br>3.2 Results and findings are confirmed. |
| 4. Identify fault and/or formulate recommendations. | 4.1 Impact of fault on work schedule is identified.<br>4.2 Proposals for equipment repair are recorded based on faults found, cost/time implications and workplace approval systems. |

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| | 4.3 Report is explained to relevant workplace personnel including any options and recommendations.<br>4.4 Repairs are undertaken where appropriate in accordance with procedures. |

| Variable | Range |
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| Data and Records Procedures | All operations are performed in accordance with procedures. Procedures mean all relevant workplace procedures, work instructions, temporary instructions, standard operating procedures, plant description manuals, manufacturer's instructions, specifications, service manuals, machine circuit diagrams for hydraulic/pneumatic and electrical/electronic circuits and relevant industry and government codes and standards. |
| Tools and equipment | This competency includes use of equipment and tools such as:<br>• hand tools specific for the task<br>• product testing equipment (e.g. flow meter, scales, tape measure, micrometer, calliper, ultrasonic thickness)<br>• machinery measuring equipment (e.g. vibration meter, tachometer, current tester, thermal imaging, temperature gauge)<br>• measuring and aligning equipment |
| Hazards | Typical hazards include:<br>• rotating and moving machinery<br>• process materials, solids, fluids and gases under pressure or flowing<br>• temporary connections or by-passes<br>• electrical, hydraulic or pneumatic energy sources<br>• out-of-specification operation |
| Problems | Respond to/rectify 'non-routine problems' means 'apply known solutions to a variety of predictable problems'. Typical process and product problems may include:<br>• out-of-specification product or variations<br>• response of equipment to materials variations<br>• new or changed materials<br>• changed equipment settings (e.g. higher speed or throughput)<br>• equipment in need of maintenance<br>• procedures requiring update or modification |
| Variables | Key variables to be monitored include:<br>• equipment performance (e.g. speed, output, variations)<br>• equipment component performance<br>• sequences and timing of operations<br>• materials changes (desired and not desired) |
| Data and Records | Typical information sources, observed data and plant records may include:<br>• plant data<br>• log sheets<br>• operational and performance reports |

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| | • physical aspects such as noise, smell, feel and pressure condition monitoring information<br>• planned maintenance schedules<br>• procedures |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Must demonstrate skills and knowledge of:<br>• elaborate the procedures and know the importance of critical operational systems<br>• recognize potential situations requiring action and then implement appropriate action<br>Consistent performance should be demonstrated. For example, look to see that:<br>• early warning signs of equipment in need of attention/with potential problems are recognized<br>• appropriate tests are undertaken and tests are analyzed appropriately<br>• proposals for equipment repair are based upon the most appropriate and cost effective method to return equipment to full performance in a timely manner<br>• items initiated are followed through until final resolution has occurred |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• principles of the operation of the equipment to be maintained<br>• functions and troubleshooting of internal components and their problems<br>• routine and non-routine causes of equipment failures and the service conditions which may increase maintenance<br>• maintenance techniques, (e.g. reactive maintenance, predictive and preventative operational maintenance)<br>• appropriate testing procedures and use of equipment for a range of equipment faults<br>• operating principles for mechanical, hydraulic, pneumatic, electrical/electronic systems<br>• urgency and timeliness factors in planning maintenance activities in relation to production requirements<br>• collection, analysis and reporting of data |
| Underpinning Skills | Demonstrate skills of:<br>• identify and select testing methods based on cost and time effectiveness<br>• conduct inspections, checks and tests on equipment as appropriate<br>• read and interpret circuit diagrams for mechanical, hydraulic, pneumatic and electrical/electronic operating systems<br>• use technical information and manufacturer information to locate relevant data<br>• interpret technical specifications and manufacturer instructions |

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| | • ensure workplace is safe for testing and maintenance of equipment<br>• identify hazards of the materials and process<br>• implement appropriate procedures for hazard control<br>• use PPE, safely handle products and materials, read relevant safety information<br>• apply safety precautions appropriate to the task |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy products Processing Level III | |
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| **Unit Title** | **Monitor Storage Facilities** |
| **Unit Code** | **IND DPP3 03 0613** |
| **Unit Descriptor** | This unit involves the skills and knowledge required to monitor storage facilities in accordance with workplace requirements including determining site functions and operations; monitoring storage operations in accordance with workplace procedures; and taking appropriate action in response to identified discrepancies, changes to storage requirements, or breaches in operational procedures. |

| Elements | Performance Criteria |
|---|---|
| 1. Determine site functions and operations | 1.1 Layout of storage facilities, work flow and activities undertaken in each zone are identified.<br>1.2 Type of storage facilities, their purpose and (any) associated risk factors are identified.<br>1.3 Inventory lists are accessed through record management system.<br>1.4 Storage separations and co-storage applications are identified. |
| 2. Monitor storage operations | 2.1 Inventory data is confirmed to match goods/freight and applicable storage requirements.<br>2.2 Storage areas are supervised to ensure movement of personnel and goods/freight are in accordance with workplace procedures.<br>2.3 Storage facilities are checked to ensure appropriate operational capacity.<br>2.4 Integrity of goods/materials are monitored to ensure appropriate quality is maintained.<br>2.5 Discrepancies/changes to storage requirements and/or inventory lists are noted and action undertaken in accordance with workplace procedures.<br>2.6 Appropriate action(s) are initiated in response to breaches of operational procedures or to an emergency/incident.<br>2.7 Operational actions and investigative outcomes are documented in accordance with workplace procedures. |

| Variable | Range |
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| Customers | may be internal or external |
| Workplaces | may comprise large, medium or small worksites |
| Requirements for work | may include:<br>• restricted spaces |

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| | • site restrictions and procedures<br>• use of safety and personal protective equipment<br>• communications equipment<br>• specialized lifting and/or handling equipment<br>• incident/accident breakdown procedures<br>• additional gear and equipment<br>• noise restrictions<br>• hours of operations<br>• authorities and permits |
| Work | may be conducted:<br>• in a range of work environments<br>• by day or night<br>• restricted spaces<br>• exposed conditions<br>• controlled or open environments<br>• environments involving the movement of equipment, goods, materials and/or vehicular traffic |
| Goods | may involve:<br>• special handling, location, storage and/or packaging requirements, including temperature controlled goods and dangerous goods |
| Modes of transfer | may be:<br>• manual or motorized |
| Storage types | may include but are not limited to:<br>• bin/binning systems<br>• rack refrigeration/freezers/cold rooms<br>• marked floor space<br>• containers<br>• racks and racking systems<br>• block/stacks<br>• pallets |
| Inventory systems | may be:<br>• automated<br>• manual<br>• paper-based<br>• computerized<br>• microfiche |
| Categories or groups of products/stock | may include:<br>• small parts<br>• perishable goods<br>• overseas export<br>• dangerous goods<br>• refrigerated products<br>• temperature controlled stock<br>• fragile goods |
| The characteristics of products/stock | may include:<br>• small parts |

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| | • toxicity<br>• flammability<br>• form<br>• weight<br>• size<br>• state<br>• perish ability<br>• fragility<br>• security risk |
| Labeling systems | may include but are not limited to:<br>• batch code<br>• bar code<br>• identification numbering systems<br>• serial numbers<br>• symbols for safe handling<br>• ADG and HAZCHEM Codes |
| Hazards in the work area | may include:<br>• hazardous or dangerous materials<br>• contamination of, or from, materials being handled<br>• noise, light, energy sources<br>• stationary and moving machinery, parts or components<br>• service lines<br>• skills, leakages, ruptures<br>• dust/vapors<br>• oil or water on floor<br>• a fire or explosion<br>• damaged packaging or pallets<br>• debris on floor<br>• faulty racking<br>• poorly stacked pallets<br>• faulty equipment |
| Communication in the work area | may include:<br>• phone<br>• Electronic Data Interchange (EDI)<br>• fax<br>• email<br>• internet<br>• RF systems<br>• oral, aural or signed communications |
| Workplace procedures | may include:<br>• company procedures<br>• enterprise procedures<br>• organizational procedures<br>• established procedures |
| Personal protective equipment | may include:<br>• gloves |

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| | • safety headwear and footwear<br>• safety glasses<br>• two-way radios<br>• high visibility clothing |
| Consultative processes | may involve:<br>• other employees and supervisors<br>• suppliers, customers and clients<br>• relevant authorities and institutions<br>• management and union representatives<br>• industrial relations and OHS specialists<br>• other maintenance, professional or technical staff |
| Information/ documents | may include:<br>• goods identification numbers and codes<br>• manifests, picking slips, merchandise transfers, stock requisitions and bar codes<br>• codes of practice and regulations relevant to workplace operations<br>• Ethiopian and international regulations and codes of practice for the handling, stacking and transport of dangerous goods and hazardous substances<br>• operations manuals, job specifications and induction documentation<br>• manufacturers specifications for equipment<br>• workplace procedures and policies<br>• supplier and/or client instructions<br>• dangerous goods declarations and material safety data sheets<br>• award, enterprise bargaining agreement, other industrial arrangements<br>• relevant Ethiopian standards and certification requirements<br>• quality assurance procedures<br>• emergency procedures |
| Applicable regulations and legislation | may include:<br>• codes and regulations relevant to the monitoring of storage facilities<br>• Ethiopian and international regulations and codes of practice for the storage of dangerous goods and hazardous substances, including:<br>➢ Ethiopian Dangerous Goods Code<br>➢ Ethiopian Explosives Code<br>• license, patent or copyright arrangements<br>• water and road use and license arrangements<br>• export/import/quarantine/bond requirements<br>• marine orders<br>• relevant state/territory OHS and environmental protection legislation<br>• workplace relations regulations<br>• workers compensation regulations |

| Evidence Guide | |
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| Critical Aspects of Competence | Must demonstrate skills to:<br>• Determine site functions and operations<br>• Monitor storage operations |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• Ethiopian codes and regulations, permit and license requirements relevant to the workplace activities<br>• Relevant OHS and environmental protection procedures and guidelines<br>• Workplace procedures and policies relevant to the monitoring of storage facilities<br>• Focus of operation of work systems, equipment, management and site operating systems<br>• Information on various categories or groups of products including their key characteristics and hazards and the special handling, stacking and storage requirements for each<br>• Types of storage areas and related equipment appropriate for different types of goods including perishable, fragile, dangerous, composition/state goods<br>• Equipment applications, capacities, configurations, safety hazards and control mechanisms<br>• Requirements for workplace documentation reports and records<br>• Problems that may occur when monitoring storage facilities and appropriate action that can be taken<br>• Site layout<br>• Housekeeping standards and procedures required in the workplace |
| Underpinning Skills | Demonstrate skills of:<br>• Communicate effectively with others when monitoring storage facilities<br>• Read and interpret instructions, procedures, information and signs relevant to the monitoring of storage facilities<br>• Complete documentation related to the monitoring of storage facilities<br>• Work collaboratively with others when monitoring storage facilities<br>• Adapt appropriately to cultural differences in the workplace, including modes of behavior and interactions with others<br>• Promptly report and/or rectify any identified problems, faults or malfunctions when monitoring storage facilities in accordance with regulatory requirements and workplace procedures<br>• Implement contingency plans for unplanned events related to the monitoring of storage facilities<br>• Apply precautions and required action to minimize, control or eliminate hazards that may exist during work activities |

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| | • Modify activities depending on differing operational contingencies, risk situations and environments<br>• Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment<br>• Operate and adapt to differences in equipment in accordance with standard operating procedures<br>• Use information on products and stock to determine, plan and organize processes used for the monitoring of storage facilities<br>• Select and use relevant communications, computing and office equipment when monitoring storage facilities<br>• Monitor performance of equipment<br>• Select and use required personal protective equipment conforming to industry and OHS standards |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Use Structured Problem Solving Tools** |
| **Unit Code** | **IND DPP3 04 0613** |
| **Unit Descriptor** | This competency covers the solving of process and other problems, beyond those associated directly with the process unit/equipment, using structured process improvement tools to identify improvements and/or solve problems. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify the problem. | 1.1 Variances are identified from normal operating parameters and product quality.<br>1.2 The extent, cause and nature of the ***problem*** are defined by observation and investigation.<br>1.3 The problem is stated and specified clearly. |
| 2. Determine fundamental cause of problem. | 2.1 Possible causes are identified based on experience and the use of problem solving tools/analytical techniques.<br>2.2 Possible cause statements are developed.<br>2.3 Fundamental cause is identified. |
| 3. Determine corrective action. | 3.1 All possible options are considered for resolution of the problem.<br>3.2 Strengths and weaknesses of possible options are considered.<br>3.3 Corrective action is determined to remove the problem and possible future causes.<br>3.4 Implementation plans identifying measurable objectives, resource needs and timelines are developed in accordance with safety and operating ***procedures***.<br>3.5 Recommendations are developed for ongoing monitoring and testing. |
| 4. Communicate recommendations. | 4.1 Reports on recommendation are prepared.<br>4.2 Recommendations are presented to appropriate personnel.<br>4.3 Recommendations are followed up if required. |

| Variable | Range |
|---|---|
| Problems | All operations are performed in accordance with procedures. Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards |
| Procedures | 'Anticipate and solve problems' means resolve a wide range of routine and non-routine problems, using product and process knowledge to develop solutions to problems which do not have a |

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| | known solution/a solution recorded in the procedures.<br>Typical process and product problems may include:<br>• non- routine process and quality problems<br>• equipment selection, availability and failure<br>• teamwork and work allocation problems<br>• safety and emergency situations and incidents |
| Hazards | Typical hazards include leaks, spillages and equipment hazards that can occur during the walk-through of a plant. |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Must demonstrate skills and knowledge ability to apply and explain:<br>• relevant equipment and operational processes<br>• enterprise policies and procedures<br>• enterprise goals, targets and measures<br>• enterprise quality, OHS and environmental requirements<br>• principles of decision-making strategies and techniques<br>• enterprise information systems and data collation<br>• industry codes and standards<br>Consistent performance should be demonstrated assure that:<br>• problems are recognized and clarified<br>• possible causes are identified, based on experience and use of analytical techniques in solving the problem, including:<br>➢ identifying variations<br>➢ identifying cause and effect<br>➢ separating single problems from multiple problems<br>➢ recognizing recurring problems<br>• fundamental cause of process or equipment faults is determined<br>• corrective/preventative implementation plans are developed to avoid recurrence of the problem<br>• implementation plan is presented to relevant personnel |
| Underpinning Knowledge and Attitudes | Action plans to solve problems are prepared including:<br>• priority requirements<br>• measurable objectives<br>• resource requirements<br>• methods for reaching objectives<br>• timelines<br>• coordination and feedback requirements<br>• safety requirements<br>• risk assessment<br>• environmental requirements |
| Underpinning Skills | Demonstrate skills of:<br>• brainstorming<br>• fishbone diagrams/cause and effect diagrams<br>• process logic/process requirements<br>• logic tree |

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| | • similarity/difference analysis<br>• Pareto analysis<br>• force field/SWOT analysis<br>• flow charts<br>• control charts, run charts and graphs<br>• scatter grams |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Perform Basic Milk Quality Tests** |
| **Unit Code** | **IND DPP3 05 0613** |
| **Unit Descriptor** | This unit of competency covers the ability to perform basic tests and measurements using standard methods with access to readily available advice from supervisors. |

| Elements | Performance Criteria |
|---|---|
| 1. Interpret test requirements | 1.1. Test request is reviewed to identify samples to be tested, and method and equipment involved are tested.<br>1.2. Hazards and enterprise controls associated with the sample, preparation methods, reagents and/or equipment are identified. |
| 2. Prepare sample | 2.1. Sample description is recorded, and compared with specification, and discrepancies are recorded and reported.<br>2.2. Sample is prepared in accordance with appropriate standard methods. |
| 3. Check equipment before use | 3.1. Test equipment is set up in accordance with test method.<br>3.2. Pre-use and safety checks are performed in accordance with enterprise procedures and manufacturer's instructions.<br>3.3. Faulty or unsafe equipment is identified and reported to appropriate personnel.<br>3.4. Calibration status of equipment is checked and any out of calibration items are reported to appropriate personnel. |
| 4. Perform tests on samples | 4.1. Sample and standards to be tested are identified, prepared and weighed or measured.<br>4.2. Tests are conducted in accordance with enterprise procedures.<br>4.3. Data is recorded in accordance with enterprise procedures.<br>4.4. Calculations on data are performed as required.<br>4.5. Out of specification or atypical results is/are identified and reported promptly to appropriate personnel.<br>4.6. Equipment is shut down in accordance with operating procedures. |
| 5. Maintain a safe work environment | 5.1. Established safe work practices and personal protective equipment are used to ensure personal safety and that of other laboratory personnel.<br>5.2. The generation of wastes and environmental impacts is minimized.<br>5.3. Safe disposal of laboratory and hazardous wastes is ensured. |

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| | 5.4. Equipment and reagents are cleaned, cared for and stored as required. |

| Variable | Range |
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| Codes of practice | Where reference is made to industry codes of practice, and/or Ethiopian/international standards, it is expected the latest version will be used |
| Standards, codes, procedures and/or enterprise requirements | may include:<br>• Ethiopian and international standards, such as:<br>➢ Ethiopian ISO The international system of units (SI) and its application<br>➢ Ethiopian ISO General requirements for the competence of testing and calibration laboratories<br>➢ Ethiopian/international standards for Safety in laboratories set<br>• Ethiopian code of Good Manufacturing Practice for medicinal products (GMP)<br>• calibration and maintenance schedules<br>• enterprise recording and reporting procedures<br>• equipment manuals<br>• equipment startup, operation and shutdown procedures<br>• MSDS and safety procedures<br>• material, production and product specifications<br>• national measurement regulations and guidelines<br>• principles of Good Laboratory Practice (GLP)<br>• production and laboratory schedules<br>• quality manuals<br>• Standard Operating Procedures (SOPs) |
| Concepts of metrology | may include:<br>• that all measurements are estimates<br>• measurements belong to a population of measurements of the measured parameters<br>• repeatability<br>• precision<br>• accuracy<br>• significant figures<br>• sources of error<br>• uncertainty and traceability |
| Preparation of samples | may include:<br>• sub-sampling or splitting using procedures, such as riffling, coning and quartering, manual and mechanical splitters<br>• diluting samples<br>• physical treatments |
| Typical tests carried out by laboratory/field assistants | may include but not limited to:<br>• organoleptic tests- smell, taste, visual /optical tests of appearance, color, texture, turbidity, refractive index<br>• physical tests: |

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| | ➢ density/lactometer, specific gravity and compacted density<br>➢ clot-on-boiling<br>➢ alcohol test,<br>➢ titration<br>➢ moisture content and water activity<br>➢ particle size, particle shape and size distribution<br>• chemical tests:<br>➢ gravimetric<br>➢ colorimetric<br>➢ Electrical Conductivity (EC) and pH<br>➢ specific ions using dipsticks and kits<br>➢ nutrients (e.g. nitrates and orthophosphates) using basic kits<br>➢ Compositional analysis (Gerber, electronic)<br>➢ ashes, including sulphated ashes<br>• biological/environmental tests:<br>➢ pH, Oxygen Reduction Potential (ORP), dissolved oxygen (DO) and (EC)<br>➢ E coli using test kits<br>➢ TBC(Total Bacterial Count) and Coliforms<br>➢ Dye reduction test/ resazurine and Methylene blue<br>➢ Yeasts and mould<br>➢ surface hygiene/presence of microbes<br>➢ swab test on equipments, materials, personnel hygiene, etc<br>• packaging tests:<br>➢ tearing resistance, bursting strength and impact resistance<br>➢ permeability and/or leakage<br>• mechanical tests:<br>➢ Emerson class<br>➢ concrete slump |
| Hazards may include: | • electric shock<br>• biohazards, such as microbiological organisms and agents associated with soil, air, water, blood, and human or animal tissue and fluids<br>• solar radiation, dust and noise<br>• chemicals, such as sulphuric acid, fluorides and hydrocarbons<br>• aerosols<br>• sharps, broken glassware and hand tools<br>• flammable liquids<br>• dry ice and liquid nitrogen<br>• fluids under pressure<br>• sources of ignition<br>• occupational overuse syndrome, slips, trips and falls<br>• manual handling, working at heights and working in confined spaces<br>• crushing, entanglement and cuts associated with moving machinery or falling objects |

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| Enterprise controls to address hazards | to address hazards may include:<br>• use of MSDS<br>• use of signage, barriers and service isolation tags<br>• use of personal protective equipment, such as hard hats, hearing protection, sunscreen lotion, gloves, safety glasses, goggles, face guards, coveralls, gowns, body suits, respirators and safety boots<br>• use of appropriate equipment, such as biohazard containers and cabinets, laminar flow cabinets, and fume hood<br>• recognizing and observing hazard warnings and safety signs<br>• labeling of samples, reagents, aliquot samples and hazardous materials<br>• handling and storage of all hazardous materials and equipment in accordance with labeling, MSDS and manufacturer's instructions, and enterprise procedures and regulations<br>• cleaning and decontaminating equipment and work areas regularly using recommended procedures<br>• following established manual handling procedures for tasks involving manual handling |
| Minimizing environmental impacts | may involve:<br>• recycling of non-hazardous waste, such as chemicals, batteries, plastic, metals and glass<br>• appropriate disposal of hazardous waste<br>• correct disposal of excess sample/test material<br>• correct storage and handling of hazardous chemicals |
| Occupational Health and Safety (OHS) and environmental management requirements | OHS and environmental management requirements:<br>• all operations must comply with enterprise OHS and environmental management requirements, which may be imposed through the country's legislation - these requirements must not be compromised at any time<br>• all operations assume the potentially hazardous nature of samples and require standard precautions to be applied<br>• where relevant, users should access and apply current industry understanding of infection control issued by the Ministry of Agriculture, Regulatory Directorate and other relevant bodies |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Assessors should ensure that candidates can:<br>• accurately interpret enterprise procedures or standard methods<br>• complete all tests within the required timeline without sacrificing safety, accuracy or quality<br>• demonstrate close attention to the accuracy and precision of measurements and the data obtained<br>• maintain the security, integrity and traceability of all samples, data/results and documentation |

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| Underpinning Knowledge and Attitudes | Required knowledge includes:<br>• concepts of metrology<br>• the International System of units (SI)<br>• purpose of test<br>• principles of the standard method<br>• pre-use equipment checks<br>• relevant standards/specifications and their interpretation<br>• sources of uncertainty in measurement and methods for control<br>• enterprise and/or legal traceability requirements<br>• interpretation and recording of test result, including simple calculations<br>• procedures for recognition/reporting of unexpected or unusual results<br>• relevant health, safety and environment requirements |
| Underpinning Skills | Required skills include:<br>• interpreting enterprise procedure or standard methods accurately<br>• using safety information, such as material safety data sheets (MSDS) and performing procedures safely<br>• checking test equipment before use<br>• completing all tests within required timeline without sacrificing safety, accuracy or quality<br>• calculating, recording and presenting results accurately and legibly<br>• maintaining security, integrity and traceability of all samples, data/results and documentation<br>• cleaning and maintaining equipment |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
|---|---|
| **Unit Title** | **Control Contaminants and Allergens in the Workplace** |
| **Unit Code** | **IND DPP3 06 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to examine the risk of contaminants and allergens in a food production workplace and assess and implement control measures designed to manage risks. |

| Elements | Performance Criteria |
|---|---|
| 1. Assess risk of physical contamination | 1.1. Types and sources of physical contamination in the workplace are identified.<br>1.2. Risks are identified to operations, product and consumer.<br>1.3. Control measures are identified to eliminate or reduce risks of physical contamination.<br>1.4. Workplace procedures and practices are assessed to determine level of risk for ***physical contaminants*** and opportunities for improvement identified. |
| 2. Assess risk of chemical contamination | 2.1. Types and sources of chemical contamination in the workplace are identified.<br>2.2. Risks are identified to operations, product and consumer.<br>2.3. ***Control measures*** are identified to eliminate or reduce risks of ***chemical contamination***.<br>2.4. Workplace procedures and practices are assessed to determine level of risk for ***chemical contaminants*** and opportunities for improvement identified. |
| 3. Assess risk of microbiological contamination | 3.1. Types and sources of ***microbiological contamination*** in the workplace are identified.<br>3.2. Risks are identified to operations, product and consumer.<br>3.3. Control measures are identified to eliminate or reduce risks of microbiological contamination<br>3.4. Workplace procedures and practices are assessed to determine level of risk for microbiological contaminants and opportunities for improvement identified. |
| 4. Assess risk of allergens in the workplace | 4.1. Types and sources of ***allergens*** are identified<br>4.2. Risks are identified to operations, product and consumer.<br>4.3. Control measures are identified to eliminate or reduce risks of allergens.<br>4.4. Workplace procedures and practices are assessed to determine level of risk for allergens and opportunities for improvement identified. |

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| 5. Implement control measures to manage contaminants and allergens | 5.1. Control measures are implemented as part of work operations.<br>5.2. Emergency procedures and conditions for implementation are identified.<br>5.3. Reporting and documentation associated with controls is identified and undertaken as required.<br>5.4. Work is conducted in accordance with workplace environmental guidelines. |

| Variable | Range |
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| Physical contaminants | include all foreign objects that are caused by or come from:<br>• the raw material source<br>• processing systems<br>• processing equipment<br>• housekeeping standards<br>Sources of contamination include:<br>• employees (e.g. hair, band aids, glasses, jeweler and coins or other contaminants, such as dirt, pests, food and raw materials)<br>• maintenance and cleaning procedures (e.g. metal shavings, grease from equipment, nuts and bolts, dirty equipment from previous products and glass breakages)<br>• packaging materials (e.g. ink, dye, staples, paper, cardboard and plastic)<br>• pests (e.g. evidence of rodents gnawing on packages, rodent hair, droppings and debris)<br>• incorrectly labeled or packaged raw materials<br>• industrial sabotage (e.g. tampering anywhere through the production process)<br>• accumulation of dusts from unclean environments |
| Control measures for physical contaminants | may include:<br>• use of personal protective equipment<br>• clothing standards (e.g. enclosed hair and no jeweler)<br>• metal detectors<br>• rulings against glass in production or packaging areas<br>• covering of raw materials and equipment<br>• maintenance, cleaning and housekeeping programs<br>• inspection schedules<br>• reporting requirements and procedures<br>• emergency procedures |
| Chemical contaminants | includes the introduction of unwanted substances or an unplanned reaction between different products.<br>Sources of chemical contamination include:<br>• unwanted chemicals remaining on food preparation surfaces (e.g. cleaning chemicals)<br>• chemicals remaining in food material after processing |

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| | • too much or the wrong chemical added during manufacture<br>• insecticide, pesticides, herbicides and antibiotics that build up during the growth cycle of the food source |
| Control measures for chemical contaminants | Control measures for chemical contaminants include safe handling of chemical contaminants, such as:<br>• storing chemicals away from food production areas<br>• using correct containers for storing and dispensing chemicals<br>• correctly labeling chemicals in containers<br>• calculating and applying correct quantities<br>• ensuring chemical record sheets are filled in correctly |
| Microbiological contaminants | include micro-organisms that in food that poison or spoil it. Types of micro-organisms associated with microbiological risks include:<br>• fungi<br>• yeasts<br>• moulds<br>• viruses<br>• bacteria |
| Control measures for biological contaminants | include:<br>• temperature and climate controls<br>• personal hygiene standards<br>• storage and processing conditions<br>• chemical controls<br>• housekeeping standards<br>• pest controls |
| Allergens | include:<br>• food substances, such as nuts, milk products<br>• pollen and grain |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Must demonstrate knowledge and skills competence to:<br>• identify potential physical, chemical and microbiological contaminants in the workplace and their likely sources<br>• identify risks associated with these contaminants and the control measures to manage risks<br>• describe allergens and control measures that relate to workplace<br>• identify workplace procedures to control risks and assess effectiveness in practice<br>• implement workplace control measures |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• the purpose and intent of food safety legislation and control measures<br>• roles and responsibilities for development and maintenance of the control measures<br>• food processing methods used in the workplace or work area and the risks of contamination |

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| | • sources of technical expertise on contaminants and allergens<br>• the role of control measures in the food safety program<br>• documentation and recording requirements to support communication and monitoring of the food safety program, including procedures for maintaining and updating relevant documents, such as operating procedures<br>• main types of food safety contamination likely to occur given the type of product and processing methods used<br>• acceptable control methods for the hazards identified and required corrective action when control requirements are not met<br>• validation and verification processes and techniques and responsibilities |
| Underpinning Skills | Demonstrate skills of:<br>• identify the types of physical, chemical and microbiological contaminants and allergens that present a risk in the workplace<br>• identify sources of risks<br>• examine control measures<br>• describe the appropriate monitoring requirements for each risk, including the method or procedure to be followed, the frequency and timing, the person responsible, and the information to be recorded (procedures to be followed would typically be specified in the form of a Standard Operating Procedure (SOP) or work instruction)<br>• describe corrective action requirements in the event that acceptable limits or requirements of controls are not met<br>• develop or review documentation relating to the food safety program, such as process flow diagrams, hazard analysis charts and tables, support program requirements, data analysis reports, corrective action reports and verification reports<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• communicate food safety responsibilities within level of responsibility<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Perform Pasteurized Milk Production Operation** |
| **Unit Code** | **IND DPP3 07 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to carry out milk pasteurization processes under the direction and supervision of the operations manager. |

| Elements | Performance Criteria |
|---|---|
| 1. Apply sanitation procedures | 1.1 The storage area bulk milk and other inputs are kept clean to reduce the risk of infection.<br>1.2 All surfaces are kept clean and sanitized.<br>1.3 Stringent personal hygiene procedures are applied.<br>1.4 Raw milk area is maintained separate from pasteurized milk operations.<br>1.5 Multi-phase cleaning systems are applied to ensure sanitized surfaces and equipment.<br>1.6 Food safety related information is recorded, as required, including raw milk counts pasteurized milk counts. |
| 2. Implement procedures to prepare raw milk for pasteurization | 2.1 Clarification procedures for raw milk are carried out, if required.<br>2.2 Standardization procedures for pasteurization are implemented.<br>2.3 Pasteurization procedures are carried out.<br>2.4 Homogenization procedures are carried out. |
| 3. Assess the organoleptic properties of product and relate to specifications | 3.1 Desirable and undesirable flavors in the product are identified.<br>3.2 Different organoleptic qualities are recognized.<br>3.3 The product is assessed for evenness of color and finish.<br>3.4 Possible causal factors are identified and changes made to procedures to address product quality issues. |
| 4. Meet workplace requirements for food safety, quality and environmental management | 4.1 Records of product manufacture are kept, including required measurements for timing of operations, temperature, raw milk volume and produced product.<br>4.2 Health and safety and environmental protection procedures are implemented for the working environment.<br>4.3 Waste is disposed of and contribution made to the review of environmental impacts of the operation. |

| Variable | Range |
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| Legislation | are typically reflected in procedures and specifications. Legislation relevant to this industry includes: |

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| | the Food Standards Code, including labeling, weights and measures legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity. |
| Policies and procedures | Work is carried out according to:<br>• company procedures<br>• regulatory and licensing requirements<br>• legislative requirements<br>• industrial awards and agreements. |
| Safe work practices | are determined by risk assessment on site and may cover:<br>• use of Personal Protective Equipment (PPE)<br>• manual handling procedures<br>• exposure to hazardous substances<br>• hazards in the processing environment, such as noise, moving equipment, scalds, and trips and falls. |
| Pasteurized milk types | include any type of pasteurized fresh fluid milk products produced using different time and temperature combinations including:<br>• HTST pasteurized milk with the required standards<br>• ESL Pasteurized milk<br>• UHT milk<br>• LTLT |
| Pasteurized milk tests | include:<br>• Composition rest including fat , protein, lactose, minerals, water<br>• Organoleptic properties<br>• Biological tests including TBC and coliforms |
| Homogenising equipment | typically includes:<br>• a supply pump<br>• homogeniser block<br>• homogenising valve<br>• pressure gauge<br>• back-pressure valve<br>• pressure relief valve<br>• pressure, micro-gap, centrifugal and ultrasonic homogenisers<br>• related equipment, such as:<br>• a deaeration unit. |
| Pasteurisation methods | may be batch or continuous |
| Pasteurisation equipment | includes:<br>• thermometers<br>• recorder/controllers<br>• flow diversion devices<br>• pumps<br>• heat exchangers<br>• holding and cooling stages<br>• filters and clarifiers<br>• vacuum breakers<br>• direct steam injection equipment. |

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| Packaging methods | may include but not limited to:<br>• vacuum packaging in plastic pouches, Tetrapac, bottling |
| Multi-phase cleaning systems | may include:<br>• cleaning with a chlorinated alkaline detergent with a chelator, followed by water and acid rinses<br>• The use of CIP and COP |
| Food safety related information | may include:<br>• milk counts<br>• product bacterial counts<br>• manufacture and storage details. |
| Cleaning standards | include:<br>• Country and international guide to cleaning and sanitising of plant and equipment in the food industry<br>• Country and international guide to cleaning and sanitising dairy factory equipment<br>• Country and international guide to the cleaning-in-place of dairy factory equipment. |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Must demonstrate skills and knowledge of:<br>• following procedures for sanitation, food safety, quality assurance and environmental management in product production<br>• carrying out operations to:<br>➢ prepare milk for pasteurization<br>➢ carry out pasteurization, homogenization & standardization processes<br>➢ package and label the product according to procedures. |
| Underpinning Knowledge and Attitudes | Demonstrate Knowledge of:<br>• the main product types and the common processes for making different types of products<br>• the main components of raw milk and the final product<br>• purpose and basic principles of product production<br>• quality characteristics to be achieved by each process<br>• milk characteristics and components important in product making<br>• milk preparation for product making (standardization, pasteurization and homogenization)<br>• effect of milk characteristics on processing performance<br>• effects of acidity (either pH or titratable acidity) and temperature on processing performance and product quality<br>• types and impact of foreign substances in milk<br>• microbial contaminants of product (lipolytic bacteria, yeasts, moulds, bacillus, listeria, E. coli, salmonella, coli forms and staphylococci) and their impact on product quality<br>• sampling and testing procedures for microbes<br>• keeping temperature and humidity |

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| | • contamination/food safety risks associated with the process and related control measures<br>• techniques used to monitor the process, including inspecting, measuring and testing, as required by the process<br>• common causes of variation and corrective action required for each process<br>• organoleptic properties and their relationship to processes<br>• sampling procedures<br>• food safety and quality assurance standards and procedures<br>• hygiene, cleaning and sanitation procedures in line with best manufacturing practice<br>• routine maintenance procedures<br>• product/batch changeover procedures<br>• Occupational Health and Safety (OHS) hazards and controls<br>• contamination risk<br>• food safety principles and procedures<br>• Food Standards Code<br>• procedures and responsibility for reporting production information<br>• environmental issues and controls, including waste collection and handling procedures |
| Underpinning Skills | Demonstrate skills to:<br>• carry out cleaning and sanitation procedures<br>• follow a process flow chart for produce showing inputs, processes and outputs<br>• prepare milk for product making<br>• carry out homogenization and standardization procedures, where required<br>• apply heat treatment to milk and monitor temperature<br>• carry out sampling for chemical and microbiological testing<br>• assess product for organoleptic qualities<br>• conduct tests for different parameters in product<br>• carry out packaging<br>• implement safe work practices<br>• comply with environmental requirements for a processing operation |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Perform Yoghurt Production Operation** |
| **Unit Code** | **IND DPP3 08 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to carry out different kinds of yoghurt processes under the direction and supervision of the operations manager. |

| Elements | Performance Criteria |
|---|---|
| 1. Apply sanitation procedures | 1.1 The storage area for starter cultures is kept clean to reduce the risk of infection.<br>1.2 All surfaces are kept clean and sanitized.<br>1.3 Stringent personal hygiene procedures are applied.<br>1.4 Raw milk area is maintained separate from pasteurized milk operations.<br>1.5 Multi-phase cleaning systems are applied to ensure sanitized surfaces and equipment.<br>1.6 Food safety related information is recorded, as required, including milk counts and yoghurt bacterial, yeast and mould counts. |
| 2. Implement procedures to prepare milk for yoghurt making | 2.1 Clarification procedures for raw milk are carried out, if required.<br>2.2 Standardization procedures for milk are implemented to be processed into yoghurt.<br>2.3 Pasteurization procedures are carried out for milk.<br>2.4 Homogenization procedures are carried out for milk, where required. |
| 3. Carry out procedures to inoculate milk | 3.1 Inoculants and adjuncts are added to milk and it is allow inoculating to specification.<br>3.2 Incubation temperature is maintained at specified level evenly throughout the vat/tank.<br>3.3 Samples are taken at appropriate stages and tests carried out for acidity (either pH or titratable acidity) as required. |
| 4. Implement packaging procedures | 4.1 Requirements (duration, temperature, Acidity, where applicable) for a range of product are applied.<br>4.2 The packing environment is monitored.<br>4.3 Necessary additives and necessary agents are added, as required.<br>4.4 All other pre packing preparations are done according to that specific product SOP.<br>4.5 Packaging and labeling procedures are carried out, as required. |

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| 5. Assess the organoleptic properties of yoghurt and relate to specifications | 5.1 Desirable and undesirable flavors in products are identified.<br>5.2 Different chemical and physical properties are recognized.<br>5.3 Yoghurt is assessed for evenness of appearance, smoothness, mouth fill, texture, taste.<br>5.4 Possible causal factors are identified and changes made to procedures to address product quality issues. |
| 6. Meet workplace requirements for food safety, quality and environmental management | 6.1 Records of yoghurt manufacture are kept, including required measurements for timing of operations, temperature, milk and acidity, quantity.<br>6.2 Health and safety and environmental protection procedures are implemented for the yoghurt making working environment.<br>6.3 Waste is disposed of and contribution made to the review of environmental impacts of the yoghurt making operation. |

| **Variable** | **Range** |
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| Legislation | Are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity |
| Policies and procedures | Work is carried out according to:<br>• company procedures<br>• regulatory and licensing requirements<br>• legislative requirements<br>• industrial awards and agreements |
| Safe work practices | are determined by risk assessment on site and may cover:<br>• use of Personal Protective Equipment (PPE)<br>• manual handling procedures<br>• exposure to hazardous substances<br>• hazards in the processing environment, such as noise, moving equipment, scalds, and trips and falls |
| Yoghurt types | include<br>• Plain yoghurt (Yoghurt without additives)<br>• Set yoghurt<br>• Stirred yoghurt<br>• Fruited Yoghurt (Strawberry Yoghurt, Apple Yoghurt, Banana Yoghurt, Mango yoghurt, etc)<br>• Sweetened Yoghurt (Yoghurt with sugar or other sweeteners)<br>• Flavored yoghurt (fruit flavor, coffee flavor, chocolate flavor, etc)<br>• Whole milk yoghurt, Mild fat yoghurt, skimmed milk yoghurt, etc |
| Yoghurt inoculants | include the lactic acid bacteria which are added to the milk as a culture in inoculation |

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| Yoghurt additives | may be added to the milk before inoculation or prior packing after inoculation according to product kind and include but not limited to:<br>• Fruits<br>• Flavorings<br>• Sweeteners<br>• Preservatives<br>• Stabilizers<br>• Thickeners<br>• Emulsifiers<br>• Colorants, minerals, vitamins and other enrichments |
| Yoghurt tests | may include:<br>• Testing for pH and acidity levels,<br>• Compositional levels<br>• physical testing throughout production and the product<br>• Microbiological tests including coli form count, yeast and mould count<br>• testing for organoleptic properties |
| Homogenizing equipment | typically includes:<br>• a supply pump<br>• homogenizer block<br>• homogenizing valve<br>• pressure gauge<br>• back-pressure valve<br>• pressure relief valve<br>• pressure, micro-gap, centrifugal and ultrasonic homogenizers<br>• related equipment, such as a deaeration unit |
| Pasteurization methods | may be:<br>• Batch or continuous. |
| Pasteurization equipment | includes:<br>• thermometers<br>• recorder/controllers<br>• flow diversion devices<br>• pumps<br>• heat exchangers<br>• holding and cooling stages<br>• filters and clarifiers<br>• vacuum breaker and direct steam injection equipment |
| Packaging methods | may include:<br>• Packaging in cups, bottles, tetra packs, |
| Multi-phase cleaning systems | may include:<br>• cleaning with a chlorinated alkaline detergent with a chelator, followed by water and acid rinses, the use of CIP and COP |
| Food safety related information | may include:<br>• milk counts<br>• Yoghurt microbial counts<br>• manufacture and storage details |

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| Cleaning standards | include:<br>• Ethiopian/ International guide to cleaning and sanitizing of plant and equipment in the food industry<br>• Ethiopian/ International guide for cleaning and sanitizing dairy factory equipment<br>• Ethiopian/ International guide to the cleaning-in-place of dairy factory equipment. |

| **Evidence Guide** | |
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| Critical aspects of Competence | Must demonstrate skills and knowledge of:<br>• following procedures for sanitation, food safety, quality assurance and environmental management in yoghurt production<br>• carrying out operations to:<br>➢ prepare milk for yoghurt making<br>➢ coagulate milk through inoculation and incubation<br>➢ package and label product according to procedures. |
| Underpinning Knowledge and Attitudes | Demonstrate Knowledge of:<br>• the main yoghurt types and the common processes for making different types of yoghurt<br>• the main components of milk and yoghurt<br>• purpose and basic principles of yoghurt making<br>• quality characteristics to be achieved by each product making process<br>• milk characteristics and components important in yoghurt making<br>• milk preparation for yoghurt making (standardization, pasteurization and homogenization)<br>• types of starters used and their role in the fermentation process<br>• effect of milk characteristics on yoghurt processing performance<br>• effects of acidity (either pH or titratable acidity) and temperature on yoghurt processing performance and product quality<br>• types and impact of inhibitory substances in milk<br>• microbial contaminants of yoghurt (lipolytic bacteria, yeasts, moulds, bacillus, listeria, E. coli, salmonella, coli forms and staphylococci) and their impact on product quality<br>• the impact of bacteriophage in fermentation<br>• sampling and testing procedures for microbes<br>• temperature and time of incubation<br>• contamination/food safety risks associated with the process and related control measures<br>• techniques used to monitor the process, including inspecting, measuring and testing, as required by the process<br>• common causes of variation and corrective action required for each process |

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| | • organoleptic properties and their relationship to processes and ingredients in yoghurt making<br>• sampling procedures<br>• food safety and quality assurance standards and procedures<br>• hygiene, cleaning and sanitation procedures in line with best manufacturing practice<br>• routine maintenance procedures<br>• product/batch changeover procedures<br>• Occupational Health and Safety (OHS) hazards and controls<br>• contamination risk of inoculants and contaminants<br>• food safety principles and procedures<br>• Food Standards Code<br>• procedures and responsibility for reporting production and performance information<br>• environmental issues and controls, including waste collection and handling procedures |
| Underpinning Skills | Demonstrate skills to:<br>• carry out cleaning and sanitation procedures<br>• follow a process flow chart for yoghurt making showing inputs, processes and outputs<br>• prepare milk for yoghurt making<br>• carry out homogenisation and standardisation procedures, where required<br>• apply heat treatment to milk and monitor temperature<br>• add starter to initiate fermentation process and optional adjunct cultures for desirable attributes in different product types<br>• monitor storage and incubation, if applicable, conditions for yoghurt<br>• carry out sampling for chemical and microbiological testing of yoghurt<br>• assess yoghurt for organoleptic qualities<br>• conduct tests for pH, acidity and compositional, physical and biological quality of the product<br>• carry out packaging<br>• implement safe work practices<br>• comply with environmental requirements for a processing operation. |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Coordinate Cheese Making Operations** |
| **Unit Code** | **IND DPP3 09 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to carry out cheese making through the operation of an integrated industrial process under the direction of the cheese manufacturing manager. |

| Elements | Performance Criteria |
|---|---|
| 1. Monitor milk supply and quality | 1.1 Milk supply is confirmed for the batch.<br>1.2 Sample data on milk is checked for composition, homogeneity, somatic cell count and disk assay, as required.<br>1.3 Milk is maintained at required temperature for inoculation with the required culture. |
| 2. Prepare cheese making equipment and add ingredients | 2.1 Safe work practices are applied and reviewed based on risk assessment.<br>2.2 Ingredients are confirmed and available to meet product requirements.<br>2.3 Ingredients are added at pre-determined levels to meet recipe requirements.<br>2.4 Starter and optional adjuncts are handled safely and according to procedures to maintain purity and viability.<br>2.5 Equipment is checked to confirm readiness for use.<br>2.6 Cheese making equipment is set and operated to meet requirements.<br>2.7 Ingredients are loaded into the plant at the required stage.<br>2.8 Final mix is checked against specifications. |
| 3. Carry out process control and make adjustments according to operating procedures | 3.1 Correct start-up and shutdown procedures are followed.<br>3.2 Equipment faults are identified and reported.<br>3.3 Cheese making processes are monitored and required samples are taken according to operating procedures.<br>3.4 Routine testing is carried out and records maintained.<br>3.5 Timings are monitored as cheese moves through processing stages.<br>3.6 Salt and moisture levels and pH levels are monitored and adjusted by varying the addition rate of ingredients, adjusting moisture control parameters, or changing time spent in processing stages as per operating procedures.<br>3.7 Cheese is checked for food safety and quality requirements.<br>3.8 Unacceptable cheese is identified, rectified and/or reported.<br>3.9 Cheese is packaged for curing and distribution with correct batch number attached.<br>3.10 Equipment is cleaned to meet production and hygiene requirements after each batch. |

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| | 3.11 Safety procedures are implemented and reviewed as part of the enterprise Occupational Health and Safety (OHS) plan. |
| 4. Record and review cheese making process | 4.1 Cheese yields are monitored and compared to standards.<br>4.2 Environmental practices and safety standards are reviewed in accordance with legislation and workplace requirements.<br>4.3 Workplace records are maintained according to requirements. |

| Variable | Range |
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| Legislation | are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity. |
| Policies and procedures | Work is carried out according to:<br>• company procedures<br>• regulatory and licensing requirements<br>• legislative requirements industrial awards and agreements. |
| Safe work practices | are determined by risk assessment on site and may cover:<br>• use of Personal Protective Equipment (PPE)<br>• manual handling procedures<br>• exposure to hazardous substances<br>• hazards in the processing environment, such as noise, moving equipment, scalds, and trips and falls. |
| Cheese types | may be:<br>• of any type but must be produced using an integrated industrial process. |
| Cheese inoculants | include:<br>• the lactic acid bacteria which are added to the milk as a culture in inoculation<br>• fungi. |
| Cheese additives | are added to the milk after inoculation and include:<br>• calcium chloride<br>• nitrates<br>• color<br>• flavorings, fruit or nuts<br>• lipases. |
| Cheese adjuncts | are microbial populations added to cheese in addition to the normal inoculants to:<br>• provide consistency to flavor and texture<br>• accelerate flavor development<br>• produce specific attributes to meet market targets. |

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| Milk standardization requirements | may:<br>• include standardization of fat and protein<br>• require the addition of skim milk or skim milk solids, or the separation of cream. |
| Cheese tests | may include:<br>• testing for pH levels<br>• moisture levels<br>• fat levels<br>• salt levels<br>• physical testing of cheese throughout production. |
| Adjustments to process | may require:<br>• taking action to alter pH or moisture or adjust fat and protein levels in milk or add additional quantities of ingredients, such as salt |
| Multi-phase cleaning systems | may include:<br>• cleaning multi-phase systems, such as chlorinated alkaline detergent with a chelator, followed by water and acid rinses. |
| Food safety related information | may include:<br>• milk counts<br>• cheese bacterial counts<br>• manufacture and storage details. |
| Cleaning standards | include:<br>• Guide to cleaning and sanitizing of plant and equipment in the food industry<br>• Cleaning and sanitizing dairy factory equipment<br>• Guide to the cleaning-in-place of dairy factory equipment. |

| **Evidence Guide** | |
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| Critical aspects of Competence | Must demonstrate knowledge and skills competence to:<br>• mixing and adding ingredients<br>• sampling and making adjustments to ingredients or timings as specified in procedures<br>• supervising work flow and the packaging of cheese |
| Underpinning Knowledge and Attitudes | • the main components of milk and cheese (both curds and whey)<br>• purpose and basic principles of cheese making<br>• equipment start-up, shutdown and emergency procedures<br>• quality characteristics to be achieved by a cheese making process<br>• milk characteristics and components important in cheese making<br>• milk preparation for cheese making (fat and protein standardization, and pasteurization)<br>• types of starters used and their role in the fermentation process<br>• effect of milk characteristics on cheese processing performance |

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| | • use of coagulating enzymes to initiate the syneresis process<br>• use of adjunct cultures<br>• moisture control in cheese making<br>• effects of pH and temperature on cheese processing performance and product quality<br>• types and impact of inhibitory substances in milk<br>• microbial contaminants of cheese (lipolytic bacteria, yeasts, moulds, bacillus, listeria, E. coli, salmonella, coliforms and staphylococci) and their impact on cheese quality<br>• impact of bacteriophage on the fermentation process<br>• sampling and testing procedures for contaminant microbes<br>• operation and routine maintenance requirements of cheese making and packing plant and equipment<br>• operational procedures for operating the cheese making process, including adding ingredients, testing, measuring and recording, and making limited adjustments to ingredient recipes or the operation of equipment according to procedures<br>• common causes of variation and corrective action required for each stage of the cheese making operation<br>• contamination risk of inoculants and contaminants<br>• food safety risks associated with the process and related control measures<br>• organoleptic properties of cheese and their relationship to processes and ingredients in cheese making<br>• sampling procedures<br>• packaging procedures<br>• product/batch changeover procedures<br>• staff supervision<br>• line responsibility for reporting production and performance information<br>• food safety and quality assurance standards and procedures<br>• hygiene, cleaning and sanitation procedures in line with best manufacturing practice<br>• Food Standards Code<br>• routine maintenance procedures<br>• OHS hazards and controls<br>• environmental issues and controls relevant to the process, including waste collection and handling procedures related to the process. |
| Underpinning Skills | Demonstrate skills to:<br>• confirm condition, type, quality and quantity of ingredients<br>• measure ingredients, as required<br>• confirm equipment status and condition<br>• set cheese making equipment to meet production requirements<br>• transfer ingredients and check that all meet specifications<br>• take corrective action according to operating procedures |

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| | • use equipment correctly and identify basic equipment faults<br>• maintain work area to meet housekeeping standards<br>• carry out sampling for chemical and microbiological testing of cheese<br>• conduct tests for ph, moisture, fat and salt levels in cheese<br>• implement safe work practices<br>• comply with environmental requirements for a cheese processing operation. |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Carry out Cheese Making Operations** |
| **Unit Code** | **IND DPP3 10 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to carry out cheese making processes under the direction and supervision of the operations manager. |

| Elements | Performance Criteria |
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| 1. Apply sanitation procedures | 1.1 The storage area for starter cultures is kept clean to reduce the risk of infection.<br>1.2 All surfaces are kept clean and sanitized, except for curing boards.<br>1.3 Stringent personal hygiene procedures are applied.<br>1.4 Raw milk area is maintained separate from pasteurized milk operations.<br>1.5 Multi-phase cleaning systems are applied to ensure sanitized surfaces and equipment.<br>1.6 ***Food safety*** related information is recorded, as required, including milk counts and cheese bacterial counts. |
| 2. Implement procedures to prepare milk for cheese making | 2.1 Clarification procedures for raw milk are carried out, if required.<br>2.2 Standardization procedures for milk are implemented to be processed into cheese.<br>2.3 Pasteurization procedures are carried out for milk.<br>2.4 Homogenization procedures are carried out for milk, where required. |
| 3. Carry out procedures to inoculate milk and cut the curd | 3.1 ***Inoculants*** and ***adjuncts*** are added to milk and it is allow to ripen to specification.<br>3.2 Rennet is measured accurately and diluted before adding to milk.<br>3.3 Temperature is maintained at specified level evenly throughout the vat.<br>3.4 Curd samples are taken and tests carried out for acidity (either pH or titratable acidity) and temperature. |
| 4. Implement procedures to separate, cook and wash the curd | 4.1 Curd cutting is carried out using the correct technique and equipment to minimize loss of protein and fat as fines.<br>4.2 Whey fat levels are assessed to monitor curd cutting efficiency.<br>4.3 The cooking schedule is followed and curd is stirred to ensure optimal syneresis. |

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| | 4.4 Draining and optional washing procedures are carried out to ensure curd is at required moisture, pH level and consistency. |
| 5. Carry out fermentation, salting and optional pressing treatments | 5.1 Curd is transferred to moulds to form the shape of cheeses for brine salted cheeses and then held at a constant temperature for completion of fermentation.<br>5.2 Acidification of curd is continued after draining, then dry salt is added to milled curd before pressing.<br>5.3 ***Salting*** treatments are applied to ensure uniform salt levels in the finished product.<br>5.4 Dry salted cheese is pressed in the required moulds. |
| 6. Implement cheese curing and packaging procedures | 6.1 Curing requirements (duration, temperature and humidity, where applicable) for a range of cheeses are applied.<br>6.2 The curing environment is monitored.<br>6.3 Ripening agents are added to cheese, if required.<br>6.4 ***Packaging*** and labeling procedures are carried out, either before or after curing, as required. |
| 7. Assess the organoleptic properties of cheese and relate to specifications | 7.1 Desirable and undesirable flavors in cheese are identified.<br>7.2 Different textures of cheeses are recognized.<br>7.3 Cheese is assessed for evenness of color and finish.<br>7.4 Possible causal factors are identified and changes made to procedures to address cheese quality issues. |
| 8. Meet workplace requirements for food safety, quality and environmental management | 8.1 Records of cheese manufacture are kept, including required measurements for timing of operations, temperature, milk and curd acidity, curd weight, hooped yield and curing data.<br>8.2 Health and safety and environmental protection procedures are implemented for the cheese making working environment.<br>8.3 Waste is disposed of and contribution made to the review of environmental impacts of the cheese making operation. |

| **Variable** | **Range** |
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| Safe work practices | are determined by risk assessment on site and may cover:<br>• use of Personal Protective Equipment (PPE)<br>• manual handling procedures<br>• exposure to hazardous substances<br>• hazards in the processing environment, such as noise, moving equipment, scalds, and trips and falls. |
| Cheese types | include any type of fermented cheese product, including<br>• acid-coagulated (e.g. Cottage and cream cheese)<br>• acid/heat-coagulated (e.g. Ricotta)<br>• Rennet-coagulated (e.g. Cheddar, Parmesan, Gouda, Swiss and Camembert). |

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| Cheese inoculants | include:<br>• the lactic acid bacteria which are added to the milk as a culture in inoculation<br>• fungi. |
| Cheese adjuncts | are microbial populations added to cheese in addition to the normal inoculants to:<br>• provide consistency to flavor and texture<br>• accelerate flavor development<br>• produce specific attributes to meet market targets. |
| Salting methods | may be by:<br>• either brine salting or vat salting methods and may be carried out before or after pressing, depending on the type of cheese. |
| Packaging methods | may include:<br>• vacuum packaging in plastic, laminated foil, wax surfacing or wrapping in cloth. |
| Legislation | relevant to this industry includes:<br>• the Food Standards Code, including labelling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity. |
| Policies and procedures | Work is carried out according to:<br>• company procedures<br>• regulatory and licensing requirements<br>• legislative requirements<br>• industrial awards and agreements. |
| Cheese additives | may be added to the milk after inoculation and include<br>• calcium chloride<br>• nitrates<br>• color<br>• lipases. |
| Cheese tests | • pH levels, moisture levels and salt levels<br>• physical testing of cheese throughout production<br>• testing for organoleptic properties. |
| Homogenizing equipment | typically includes:<br>• a supply pump<br>• homogenizer block<br>• homogenizing valve<br>• pressure gauge<br>• back-pressure valve<br>• pressure relief valve<br>• pressure, micro-gap, centrifugal and ultrasonic homogenizers<br>• related equipment, such as:<br>• a deaeration unit. |
| Pasteurization methods | may be:<br>• batch or continuous. For hard cheeses matured more than three months at no less than 2°C, heat treatment of milk (lower temperature for the same time) may be used. |

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| Pasteurization equipment | includes:<br>• thermometers<br>• recorder/controllers<br>• flow diversion devices<br>• pumps<br>• heat exchangers<br>• holding and cooling stages<br>• filters and clarifiers<br>• vacuum breakers<br>• direct steam injection equipment. |
| Curd cutting | may be:<br>• manual with cutting harps<br>• automated with mechanical knives. |
| Cheese pressing | may include:<br>• pressing the cheeses to the required pressure to form the shape. |
| Multi-phase cleaning systems | may include:<br>• cleaning with a chlorinated alkaline detergent with a chelator, followed by water and acid rinses. |
| Food safety related information | may include:<br>• milk counts<br>• cheese bacterial counts<br>• manufacture and storage details. |
| Cleaning standards | include:<br>• International and or/ Ethiopian guide to cleaning and sanitizing of plant and equipment in the food industry<br>• International and or/ Ethiopian guide for cleaning and sanitizing dairy factory equipment<br>• International and or/ Ethiopian guide to the cleaning-in-place of dairy factory equipment. |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Critical aspects of assessment must include evidence of:<br>• following procedures for sanitation, food safety, quality assurance and environmental management in cheese production<br>• carrying out operations to:<br>➢ prepare milk for cheese making<br>➢ coagulate milk through inoculation and ripening<br>➢ separate and wash curd<br>➢ carry out cooking and curing processes<br>➢ package and label cheeses according to procedures. |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• the main cheese types and the common processes for making different types of cheeses<br>• the main components of milk and cheese (both curds and whey) |

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| | • purpose and basic principles of cheese making<br>• quality characteristics to be achieved by each cheese making process<br>• milk characteristics and components important in cheese making<br>• milk preparation for cheese making (standardization, pasteurization and homogenization)<br>• types of starters used and their role in the fermentation process<br>• effect of milk characteristics on cheese processing performance<br>• moisture control in cheese making<br>• processes of coagulation and syneresis and their role in cheese making<br>• effects of acidity (either pH or titratable acidity) and temperature on cheese processing performance and product quality<br>• types and impact of inhibitory substances in milk<br>• microbial contaminants of cheese (lipolytic bacteria, yeasts, moulds, bacillus, listeria, E. coli, salmonella, coliforms and staphylococci) and their impact on cheese quality<br>• the impact of bacteriophage in fermentation and ripening<br>• sampling and testing procedures for microbes<br>• role of yeasts, moulds and adjunct cultures in cheese making<br>• temperature and humidity of curing<br>• ripening agents for different cheese types<br>• contamination/food safety risks associated with the process and related control measures<br>• techniques used to monitor the cheese making process, including inspecting, measuring and testing, as required by the process<br>• common causes of variation and corrective action required for each cheese making process<br>• organoleptic properties and their relationship to processes and ingredients in cheese making<br>• sampling procedures<br>• food safety and quality assurance standards and procedures<br>• hygiene, cleaning and sanitation procedures in line with best manufacturing practice<br>• routine maintenance procedures<br>• product/batch changeover procedures<br>• Occupational Health and Safety (OHS) hazards and controls<br>• contamination risk of inoculants and contaminants<br>• food safety principles and procedures<br>• Food Standards Code<br>• procedures and responsibility for reporting production and performance information |

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| | • environmental issues and controls, including waste collection and handling procedures |
| Underpinning Skills | Demonstrate skills to:<br>• carry out cleaning and sanitation procedures<br>• follow a process flow chart for cheese making showing inputs, processes and outputs<br>• prepare milk for cheese making<br>• carry out homogenization and standardization procedures, where required<br>• apply heat treatment to milk and monitor temperature<br>• add starter to initiate fermentation process and optional adjunct cultures for desirable attributes in different cheese types<br>• measure and mix rennet to promote coagulation<br>• carry out curd cutting<br>• carry out cooking and drainage operations<br>• apply procedures to promote syneresis<br>• separate whey from curd and press and salt curd<br>• monitor storage and ripening, if applicable, conditions for cheese<br>• carry out sampling for chemical and microbiological testing of cheese<br>• assess cheese for organoleptic qualities<br>• conduct tests for pH, moisture and salt levels in cheese<br>• carry out packaging of cheese<br>• implement safe work practices<br>• comply with environmental requirements for a processing operation. |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Apply Raw Materials, Ingredient and Process Knowledge to Production Problems** |
| **Unit Code** | **IND DPP3 11 0613** |
| **Unit Descriptor** | This unit of competency covers skills and knowledge required to apply knowledge of ingredients and processes to troubleshoot typical problems that occur in preparing, processing and/or packaging product. |

| Elements | Performance Criteria |
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| 1. Identify and respond to non-conforming ingredients/raw materials | 1.1. Non-conformance in ***raw materials/ingredients*** is identified and reported according to workplace reporting requirements and ***policies and procedures***.<br>1.2. Causes of non-conformance are investigated and reported according to workplace reporting requirements.<br>1.3. Corrective action is determined and implemented within level of responsibility and workplace procedures.<br>1.4. Action is taken to prevent recurrence of non-conformance.<br>1.5. Action is reported according to workplace reporting requirements. |
| 2. Identify and respond to non-conforming product and processes | 2.1. ***Typical processing parameters***, stages and changes due to ***typical reactions*** which occur during ***typical processing and related techniques*** are monitored.<br>2.2. Non-conformance in processing, handling and/or storage is identified and corrective action taken according to workplace requirements.<br>2.3. Causes of non-conformance relating to processing, handling and/or storage are investigated and reported according to workplace reporting requirements and ***legislative requirements***.<br>2.4. Corrective action is determined and implemented within level of responsibility and workplace procedures for ***problem minimization***.<br>2.5. Action is taken to prevent recurrence of non-conformance.<br>2.6. Action is reported according to workplace reporting requirements.<br>2.7. Work is conducted in accordance with workplace environmental guidelines. |

| Variable | Range |
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| Ingredients/raw materials | are those used to manufacture product |

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| Policies and procedures | Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements. |
| Typical process parameters | include but are not limited to:<br>• temperature<br>• time<br>• pressure<br>• flow rate |
| Typical reactions | depend on processing method. Examples include but are not limited to:<br>• gelatinisation and hydration |
| Legislative requirements | Are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, Occupational Health and Safety (OHS), |
| Typical processing and related techniques | include but are not limited to:<br>• raw materials/ingredient dispensing<br>• preparation<br>• mixing and blending<br>• conditioning<br>• primary and further processing<br>• wrapping<br>• packing and storage |
| Problem minimization | Where recurrence of a problem cannot be prevented, procedures should be established to minimize the likelihood of recurrence and to identify any further incidents |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Must demonstrate knowledge and skills competence to:<br>• describe required quality characteristics for raw materials and ingredients<br>• describe required processes to achieve production specifications<br>• identify common non-conforming materials and ingredients and causes<br>• identify common non-conforming processes and causes<br>• determine and undertake corrective action for non-conformances<br>• complete workplace documentation and report<br>• non-conformances<br>• apply food safety procedures |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• basic composition and function of each main raw material/ingredient used, such as awareness of ingredient grades or types |

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| | • common causes of contamination/unacceptable quality of raw materials/ ingredients<br>• methods used to confirm quality standard, such as accessing information (e.g. certificates of analysis and/or laboratory clearance information)<br>• the effect of variation in raw materials/ingredients on processing stages and final product outcome, including factors likely to cause variation, and scope to adjust or correct for variation at each processing stage<br>• appropriate handling and storage requirements for raw materials/ingredients and final product, and the effect of failing to meet required storage conditions<br>• the changes and reactions that occur through processing stages, including the signs and symptoms of poor/unacceptable processing or equipment operation<br>• factors that affect the shelf-life of product<br>• the inter-relationships between processing stages and the effect of variation in processing parameters on process outcome and on final product, including factors likely to cause variation, and scope to adjust or correct for variation at subsequent process stages<br>• procedures for identifying and isolating non-conforming product<br>• troubleshooting information and techniques<br>• procedures and related documentation required to amend or introduce a new method or procedure, such as short term procedures for amending or updating specifications and processing parameters<br>• reporting requirements and responsibilities<br>• test methods to confirm raw material/ingredient and/or final product quality characteristics where relevant |
| Underpinning Skills | Demonstrates skills to:<br>• identify requirements of ingredient/raw material characteristics within level of responsibility<br>• follow procedures to identify, remove/isolate and report non-conforming ingredients/materials and/or product according to workplace reporting requirements<br>• determine likely causes of non-conformance of ingredients/raw materials<br>• recognize indicators of unacceptable or non-conforming processing, handling and/or storage outcomes<br>• act promptly to identify, remove/isolate and report non-conforming product and/or processes<br>• access and apply workplace information relating to process troubleshooting<br>• investigate non-conformance to determine likely causes and report findings to appropriate personnel |

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| | • identify action required to correct non-conformance and implement within level of responsibility<br>• identify action required to prevent or minimize and control recurrence of non-conformance and implement within level of responsibility<br>• complete workplace records, including reporting non-conformance and documenting corrective actions according to workplace recording procedures<br>• conduct tests to confirm raw material/ingredient and/or final product quality characteristics according to enterprise procedures<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Participate in a HACCP Team** |
| **Unit Code** | **IND DPP3 12 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to participate in the development and/or review of a HACCP-based food safety program under direction. |

| Elements | Performance Criteria |
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| 1. Prepare to develop and/or review a food safety program | 1.1. Roles and responsibilities for participating in, developing or reviewing a food safety program are identified.<br>1.2. The scope of the ***food safety program*** is identified. |
| 2. Identify and/or review food safety hazards | 2.1. Processes to be covered by the food safety program are identified and steps within each process are described.<br>2.2. Food safety hazards that are reasonably expected to occur are identified for each process.<br>2.3. Handling methods, processing techniques and existing support programs used in the workplace are identified. |
| 3. Establish and/or review methods to monitor and control food safety hazards | 3.1. Acceptable ***methods*** of control are established for each ***food safety hazard*** that is reasonably expected to occur.<br>3.2. Control methods are ***validated***.<br>3.3. Procedures for taking preventative action are established.<br>3.4. Appropriate methods for monitoring that processes remain within control are established.<br>3.5. Required corrective action to respond to situations where hazards are not effectively controlled is established.<br>3.6. Work is conducted in accordance with workplace environmental guidelines. |

| Variable | Range |
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| Food safety programs | Is a written document that specifies how a business will control all food safety hazards that are reasonably expected to occur in the food business. The food safety program must provide for the systematic monitoring of the controls as well as appropriate corrective action if a hazard is found not to be under control. Records must be kept to demonstrate action in relation to, or in compliance with, the food safety program. A food safety program may be developed as a stand-alone program or may be integrated with the quality program in a workplace |
| Methods used to control hazards | include:<br>• both support programs and specific hazard control limits or requirements<br>Typical examples of support programs include: |

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| | • product recall<br>• cleaning schedules<br>• pest control programs<br>• personal hygiene practices<br>• calibration procedures and related operating procedures |
| Food safety hazards | include:<br>• microbiological<br>• chemical<br>• physical hazards |
| Validation | refers to:<br>• the use of objective evidence in order to prove that materials, processes, procedures or equipment used are capable of delivering the intended result |
| Verification | refers to:<br>• reviewing all aspects of the food safety program and related records to determine compliance with and adequacy of the food safety program<br>At a minimum, food safety programs must be verified annually |
| Scope of the HACCP based plans | depends on workplace requirements and may extend outside the direct area of responsibility of the team participants |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• identify components and parameters of a food safety program<br>• identify food safety hazards in production processes<br>• establish and validate control standards and methods for each hazard<br>• establish procedures for unpredicted hazards<br>• communicate and document hazards and control procedures<br>• complete workplace records<br>• apply safe work practices and identify Occupational Health and Safety (OHS) hazards and controls<br>• apply food safety procedures. |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• the purpose and intent of food safety legislation<br>• purpose and responsibilities for maintaining records as required by legislation and workplace procedures<br>• roles and responsibilities for development and maintenance of the food safety program, including roles of internal and external auditors and of authorised officers<br>• techniques for applying HACCP-based principles, including techniques for identifying hazards, assessing the likelihood of occurrence, determining acceptable methods of control, monitoring and recording requirements for each control point, identifying corrective action if controls are not met, and developing system review procedures |

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| | • techniques used to map operations and analyse food safety requirements, such as preparation of flow charts, hazard analysis charts and tables, and data analysis reports<br>• raw materials, ingredient and finished product composition and characteristics, and related handling and storage requirements<br>• food processing methods used in the workplace or work area and their effect on food safety<br>• sources of technical expertise on food safety requirements<br>• the role of consultation in the development, implementation and ongoing maintenance of the food safety program<br>• documentation and recording requirements to support communication and monitoring of the food safety program, including procedures for maintaining and updating relevant documents, such as operating procedures<br>• main types of food safety hazards/contamination likely to occur given the type of product and processing methods used<br>• conditions required for bacterial food poisoning to occur, such as water activity, pH, composition, time and temperature as relevant to food handled<br>• acceptable control methods for the hazards identified and required corrective action when control requirements are not met<br>• typical support programs, such as cleaning schedules, pest control, stock rotation, product traceability and personal hygiene, and how they can be used as part of a food safety program<br>• acceptable control methods for the hazards identified and required corrective action when control requirements are not met<br>• validation and verification processes and techniques and responsibilities |
| Underpinning Skills | Demonstrate skills of:<br>• identify personal roles and responsibilities for participating in the development or review of a food safety program<br>• identify processes and steps to be covered<br>• identify hazards that are reasonably expected to occur and establish appropriate methods of control, such as participating in validating existing control methods and where there is no adequate control method in place, establishing an appropriate method<br>• establish or review procedures for implementing preventative action, such as revision of materials, processes and/or food handling procedures, and where required, the revision of workplace practices and documentation, such as specifications, operating procedures and approved supplier programs |

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| | • describe the appropriate monitoring requirements for each food safety hazard, including the method or procedure to be followed, the frequency and timing, the person responsible, and the information to be recorded (procedures to be followed would typically be specified in the form of a standard operating procedure or work instruction)<br>• describe corrective action requirements in the event that acceptable limits or requirements of support programs are not met<br>• develop or review documentation relating to the design and maintenance of the food safety program, such as flow diagrams, hazard analysis charts and tables, support program requirements, data analysis reports, corrective action reports and verification reports<br>• develop or review documentation to communicate food safety responsibilities, such as Standard Operating Procedures (SOPs), processing parameters and recording devices (e.g. log sheets)<br>• communicate food safety responsibilities within level of responsibility using techniques and presentation styles appropriate to the audience<br>• use oral communication skills/language competence to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Report on Workplace Performance** |
| **Unit Code** | **IND DPP3 13 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to collate and maintain workplace records to enable the monitoring and reporting of workplace performance. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify recording and reporting requirements | 1.1. The purpose of recording performance-related ***information*** is identified.<br>1.2. ***Recording*** and reporting responsibilities are identified.<br>1.3. Recording and reporting systems and formats are identified. |
| 2. Maintain workplace information | 2.1. Records are complete, timely and accurate.<br>2.2. Performance information is recorded in required format to meet workplace reporting requirements.<br>2.3. Errors or discrepancies in recording are identified and corrected or notified to appropriate personnel.<br>2.4. Variances are identified, investigated and reported according to workplace procedure.<br>2.5. Requests for information are assessed, prioritized and addressed to meet required timelines. |
| 3. Maintain security of workplace information | 3.1. Access levels and authorities are identified.<br>3.2. Security of workplace records and reports is maintained.<br>3.3. Security breaches are identified and reported to appropriate personnel. |

| Variable | Range |
|---|---|
| Information recorded and reported | Information recorded and reported may include but is not limited to:<br>• collation of information recorded by others, such as timesheets, log sheets, recipes/specifications, operating procedures, production statistics, downtime, labor and materials usage levels |
| Recording systems | may be carried out manually or involve the use of use of planning and systems control software, |
| Policies and procedures | Work is carried out in accordance with company policies, procedures, regulatory and licensing requirements, legislative requirements and industrial awards and agreements |

| Evidence Guide | |
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| Critical aspects of Competence | Evidence of ability to:<br>• describe the reporting and recording systems and procedures for work area |

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| | • record information on work performance in accordance with reporting procedures<br>• report variances and inconsistencies<br>• Maintain security of work documentation. |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• the purpose and responsibilities for the information records and reports to be maintained or produced, including accuracy levels and timeliness of recording and reporting<br>• techniques used to collate and assess information, including typical recording outcomes to identify unusual or incorrectly recorded information<br>• likely causes of variation and related reporting responsibilities<br>• information system access levels and codes, such as levels within software<br>• communication skills relevant to reporting role |
| Underpinning Skills | Demonstrate skills to:<br>• identify and use recording/reporting formats and systems<br>• identify information security requirements and procedures for responding to/reporting a security breach<br>• collect and collate information to be recorded as required<br>• assess information to confirm that it is complete and accurate and follow up inaccurate recording with relevant personnel<br>• identify significant performance variation, investigate and report cause/s<br>• prepare reports in required format to meet reporting timelines<br>• respond to information requests on a timely basis<br>• use oral communication skills/language competence to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
|---|---|
| **Unit Title** | **Provide Work Skill Instruction** |
| **Unit Code** | **IND DPP3 14 613** |
| **Unit Descriptor** | This unit describes the performance outcomes, skills and knowledge required to conduct individual and group instruction and demonstrate work skills, using existing learning resources in a safe and comfortable learning environment. The unit covers the skills and knowledge required to determine the success of both the training provided and one's own personal training performance. It emphasizes the training as being driven by the work process and context. |

| Elements | Performance Criteria |
|---|---|
| 1. Organize instruction and demonstration | 1.1. Information about ***learner characteristics*** and learning needs is gathered.<br>1.2. A ***safe learning environment*** is confirmed.<br>1.3. ***Instruction and demonstration objectives*** are gathered and checked and assistance is sought if required.<br>1.4. Relevant ***learning resources*** and ***learning materials*** are accessed and reviewed for suitability and relevance, and assistance is sought to interpret the contextual application.<br>1.5. Access to necessary equipment or physical resources required for instruction and demonstration is organized.<br>1.6. Learners are notified of ***details*** regarding the implementation of the learning program and/or delivery plan. |
| 2. Conduct instruction and demonstration | 2.1. Interpersonal skills with learners are used to establish a safe and comfortable learning environment.<br>2.2. The learning program and/or delivery plan are followed to cover all learning objectives.<br>2.3. Learners are briefed on any ***OHS procedures*** and requirements prior to and during training.<br>2.4. ***Delivery techniques*** are used to structure, pace and enhance learning.<br>2.5. ***Coaching*** techniques are applied to assist learning.<br>2.6. Communication skills are used to provide information, instruct learners and demonstrate relevant work skills.<br>2.7. Opportunities are provided for practice during instruction and through work activities.<br>2.8. Feedback on learner performance is provided and discussed to support learning. |

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| 3. Check training performance | 3.1. ***Measures*** are used to ensure learners are acquiring and can use new technical and generic skills and knowledge.<br>3.2. Learner progress and outcomes are monitored in consultation with learner.<br>3.3. Relationship between the trainer/coach and the learner are reviewed and adjusted to suit learner needs. |
| 4. Review personal training performance and finalize documentation | 4.1. Reflect upon personal performance in providing instruction and demonstration, and document strategies for improvement.<br>4.2. Learner records are maintained, stored and secured according to organizational and legal requirements. |

| **Variable** | **Range** |
|---|---|
| Learner characteristics | may include:<br>• language, literacy and numeracy levels<br>• learning styles<br>• past learning and work experiences<br>• specific needs<br>• workplace culture. |
| Safe learning environment | may include:<br>• exit requirements<br>• personal protective equipment<br>• safe access<br>• safe use of equipment. |
| Instruction and demonstration objectives | may include:<br>• competencies to be achieved<br>• generic and technical skills, which may be:<br>➢ provided by the organization<br>➢ developed by a colleague<br>➢ individual or group objectives<br>➢ learning outcomes. |
| Learning resources | may include:<br>• any material used to support learning, such as:<br>➢ learner and user guides<br>➢ trainer and facilitator guides<br>➢ example training programs<br>➢ specific case studies<br>➢ professional development materials<br>➢ assessment materials<br>• a variety of formats<br>• those produced locally<br>• those acquired from other sources. |
| Learning materials | may include:<br>• handouts for learners<br>• materials sourced from the workplace, e.g. workplace |

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| | documentation, operating procedures, and specifications. |
| Details | may include:<br>• location and time<br>• outcomes of instruction or demonstration<br>• reason for instruction or demonstration<br>• who will be attending instruction session. |
| OHS procedures | may include:<br>• emergency procedures<br>• hazards and their means of control<br>• incident reporting<br>• use of personal protective equipment<br>• safe work practices<br>• safety briefings<br>• site-specific safety rules. |
| Delivery techniques | may include:<br>• coaching<br>• demonstration<br>• explanation<br>• group or pair work<br>• providing opportunities to practice skills and solve problems<br>• questions and answers. |
| Coaching | may include:<br>• learning arrangements requiring immediate interaction and feedback<br>• on-the-job instruction and 'buddy' systems<br>• relationships targeting enhanced performance<br>• short-term learning arrangements<br>• working on a one-to-one basis. |
| Measures | may include:<br>• informal review or discussion<br>• learner survey<br>• on-the-job observation<br>• review of peer coaching arrangements. |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Carry out a minimum of three training sessions, involving demonstrating and instructing particular work skills for different groups; with each session addressing:<br>• different learning objectives<br>• a range of techniques and effective communication skills appropriate to the audience. |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• learner characteristics and needs<br>• content and requirements of the relevant learning program and/or delivery plan<br>• sources and availability of relevant learning resources and learning materials |

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| | • content of learning resources and learning materials<br>• training techniques that enhance learning and when to use them<br>• introductory knowledge of learning principles and learning styles<br>• key OHS issues in the learning environment, including:<br>➢ roles and responsibilities of key personnel<br>➢ responsibilities of learners<br>➢ relevant policies and procedures, including hazard identification, risk assessment, reporting requirements, safe use of equipment and emergency procedures<br>➢ risk controls for the specific learning environment |
| Underpinning Skills | Demonstrate skills of:<br>• verbal and non-verbal communication techniques, such as:<br>➢ asking relevant and appropriate questions<br>➢ providing explanations<br>➢ demonstrating<br>➢ using listening skills<br>➢ providing information clearly<br>• safety skills to implement OHS requirements, by acting and responding safely in order to:<br>➢ identify hazards<br>➢ conduct prestart-up checks if required<br>➢ observe and interpret learner behavior that may put people at risk<br>• time-management, skills to:<br>➢ ensure all learning objectives are covered<br>➢ pace learning<br>• reflection skills in order to:<br>➢ identify areas for improvement<br>➢ maintain personal skill development<br>• literacy skills to:<br>➢ complete and maintain documentation<br>➢ read and follow learning programs and plans<br>➢ read and analyze learner information<br>• technology skills to operate audio-visual and technical equipment<br>• interpersonal skills to:<br>➢ engage, motivate and connect with learners<br>➢ provide constructive feedback<br>➢ maintain appropriate relationships<br>➢ establish trust<br>➢ use appropriate body language<br>➢ maintain humor<br>➢ demonstrate tolerance<br>➢ manage a group<br>➢ recognize and be sensitive to individual difference and diversity |

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| | • observation skills to:<br>➢ monitor learner acquisition of new skills, knowledge and competency requirements<br>➢ assess learner communication and skills in interacting with others<br>➢ identify learner concerns<br>➢ recognize learner readiness to take on new skills and tasks |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Monitor Implementation of Work Plan/Activities** |
| **Unit Code** | **IND DPP3 15 0613** |
| **Unit Descriptor** | This unit covers competence required to oversee and monitor the quality of work operations within an enterprise. This unit may be carried out by team leaders or supervisors. |

| Elements | Performance Criteria |
|---|---|
| 1. Monitor and improve workplace operations | 1.1 Efficiency and service levels are monitored on an ongoing basis.<br>1.2 Operations in the workplace support overall enterprise goals and quality assurance initiatives.<br>1.3 Quality ***problems*** and issues are promptly identified and adjustments are made accordingly.<br>1.4 Procedures and systems are changed in consultation with colleagues to improve efficiency and effectiveness.<br>1.5 Colleagues are consulted about ways to improve efficiency and service levels. |
| 2. Plan and organise workflow | 2.1 Current workload of colleagues is accurately assessed.<br>2.2 Work is scheduled in a manner which enhances efficiency and customer service quality.<br>2.3 Work is delegated to appropriate people in accordance with principles of delegation.<br>2.4 Workflow is assessed against agreed objectives and timelines and colleagues are assisted in prioritisation of workload.<br>2.5 Input is provided to appropriate management regarding staffing needs. |
| 3. Maintain workplace records | 3.1 ***Workplace records*** are accurately completed and submitted within required timeframes.<br>3.2 Where appropriate completion of records is delegated and monitored prior to submission. |
| 4. Solve problems and make decisions | 4.1 Workplace problems are promptly identified and considered from an operational and customer service perspective.<br>4.2 Short term action is initiated to resolve the immediate problem where appropriate.<br>4.3 Problems are analysed for any long term impact and potential solutions are assessed and actioned in consultation with relevant colleagues.<br>4.4 Where problem is raised by a team member, they are encouraged to participate in solving the problem.<br>4.5 Follow up action is taken to monitor the effectiveness of solutions in the workplace. |

| Variables | Range |
|---|---|
| Problems | May include but not limited to:<br>• difficult customer service situations<br>• equipment breakdown/technical failure<br>• delays and time difficulties<br>• competence |
| Workplace records | May include but is not limited to:<br>• staff records and regular performance reports |

| Evidence Guide | |
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| Critical Aspects of Competence | Demonstrates skills and knowledge in:<br>• ability to effectively monitor and respond to a range of common operational and service issues in the workplace<br>• understanding of the role of staff involved in workplace monitoring<br>• knowledge of quality assurance, principles of workflow planning, delegation and problem solving |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• roles and responsibilities in monitoring work operations<br>• overview of leadership and management responsibilities<br>• principles of work planning and principles of delegation<br>• typical work organization methods appropriate to the sector<br>• quality assurance principles and time management<br>• problem solving and decision making processes<br>• industrial and/or legislative issues which affect short term work organization as appropriate to industry sector |
| Underpinning Skills | Demonstrate skills to:<br>• monitor and improve workplace operations<br>• plan and organize workflow<br>• maintain workplace records |
| Resource Implications | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Apply Quality Control** |
| **Unit Code** | **IND DPP3 16 0613** |
| **Unit Descriptor** | This unit covers the knowledge, attitudes and skills required in applying quality control in the workplace. |

| Elements | Performance Criteria |
|---|---|
| 1. Implement quality standards | 1.1 Agreed quality standard and procedures are acquired and confirmed.<br>1.2 Standard procedures are introduced to organizational staff/personnel.<br>1.3 Quality standard and procedures documents are provided to employees in accordance with the organization policy.<br>1.4 Standard procedures are revised / updated when necessary. |
| 2. Assess quality of service delivered | 2.1 Services delivered are ***quality checked*** against organization ***quality standards*** and specifications.<br>2.2 Service delivered are evaluated using the appropriate evaluation ***quality parameters*** and in accordance with organization standards.<br>2.3 Causes of any identified faults are identified and corrective actions are taken in accordance with organization policies and procedures. |
| 3. Record information | 3.1 Basic information on the quality performance is recorded in accordance with organization procedures.<br>3.2 Records of work quality are maintained according to the requirements of the organization. |
| 4. Study causes of quality deviations | 4.1 Causes of deviations from final outputs or services are investigated and reported in accordance with organization procedures.<br>4.2 Suitable preventive action is recommended based on organization quality standards and identified causes of deviation from specified quality standards of final service or output. |
| 5. Complete documentation | 5.1 Information on quality and other indicators of service performance is recorded.<br>5.2 All service processes and outcomes are recorded. |

| Variable | Range |
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| Quality check | May include but not limited to:<br>• Check against design / specifications<br>• Visual inspection and Physical inspection |
| Quality standards | May include but not limited to:<br>• Materials |

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| | • Components<br>• Process<br>• Procedures |
| Quality parameters | May include but not limited to:<br>• Standard Design / Specifications<br>• Material Specification |

| **Evidence Guide** | |
|---|---|
| Critical Aspects of Competence | Demonstrates skills and knowledge to:<br>• Check completed work continuously against organization standard<br>• Identify and isolate faulty or poor service<br>• Check service delivered against organization standards<br>• Identify and apply corrective actions on the causes of identified faults or error<br>• Record basic information regarding quality performance<br>• Investigate causes of deviations of services against standard<br>• Recommend suitable preventive actions |
| Underpinning Knowledge | Demonstrates knowledge of:<br>• Relevant quality standards, policies and procedures<br>• Characteristics of services<br>• Safety environment aspects of service processes<br>• Evaluation techniques and quality checking procedures<br>• Workplace procedures and reporting procedures |
| Underpinning Skills | Demonstrates skills to:<br>• interpret work instructions, specifications and standards appropriate to the required work or service<br>• carry out relevant performance evaluation<br>• maintain accurate work records<br>• meet work specifications and requirements<br>• communicate effectively within defined workplace procedures |
| Resource Implications | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Lead Workplace Communication** |
| **Unit Code** | **IND DPP3 17 0613** |
| **Unit Descriptor** | This unit covers the knowledge, attitudes and skills needed to lead in the dissemination and discussion of information and issues in the workplace. |

| Elements | Performance Criteria |
|---|---|
| 1. Communicate information about workplace processes | 1.1 Appropriate ***communication method*** is selected.<br>1.2 Multiple operations involving several topics areas are communicated accordingly.<br>1.3 Questions are used to gain extra information.<br>1.4 Correct sources of information are identified.<br>1.5 Information is selected and organized correctly.<br>1.6 Verbal and written reporting is undertaken when required.<br>1.7 Communication skills are maintained in all situations. |
| 2. Lead workplace discussion | 2.1 Response to workplace issues is sought.<br>2.2 Response to workplace issues are provided immediately.<br>2.3 Constructive contributions are made to workplace. discussions on such issues as production, quality and safety.<br>2.4 Goals/objectives and action plan undertaken in the workplace are communicated. |
| 3. Identify and communicate issues arising in the workplace | 3.1 Issues and problems are identified as they arise.<br>3.2 Information regarding problems and issues are organized coherently to ensure clear and effective communication.<br>3.3 Dialogue is initiated with appropriate staff/personnel.<br>3.4 Communication problems and issues are raised as they arise. |

| Variable | Range |
|---|---|
| Methods of communication | May include but not limited to:<br>• Non-verbal gestures<br>• Verbal<br>• Face to face<br>• Two-way radio<br>• Speaking to groups<br>• Using telephone<br>• Written<br>• Using Internet<br>• Cell phone |

| Evidence Guide | |
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| Critical Aspects of Competence | Demonstrates skills and knowledge to:<br>• Deal with a range of communication/information at one time<br>• Make constructive contributions in workplace issues<br>• Seek workplace issues effectively<br>• Respond to workplace issues promptly<br>• Present information clearly and effectively written form<br>• Use appropriate sources of information<br>• Ask appropriate questions<br>• Provide accurate information |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• Organization requirements for written and electronic communication methods<br>• Effective verbal communication methods |
| Underpinning Skills | Demonstrates skills to:<br>• Organize information<br>• Understand and convey intended meaning<br>• Participate in variety of workplace discussions<br>• Comply with organization requirements for the use of written and electronic communication methods |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Lead Small Teams** |
| **Unit Code** | **IND DPP3 18 0613** |
| **Unit Descriptor** | This unit covers the skills, knowledge and attitudes required to determine individual and team development needs and facilitate the development of the work group. |

| Elements | Performance Criteria |
|---|---|
| 1. Provide team leadership | 1.1 ***Learning and development needs*** are systematically identified and implemented in line with ***organizational requirements***.<br>1.2 Learning plan to meet individual and group training and developmental needs is collaboratively developed and implemented.<br>1.3 Individuals are encouraged to self-evaluate performance and identify areas for improvement.<br>1.4 ***Feedback on performance*** of team members is collected from relevant sources and compared with established team learning process. |
| 2. Foster individual and organizational growth | 2.1 Learning and development program goals and objectives are identified to match the specific knowledge and skills requirements of competence standards.<br>2.2 ***Learning delivery methods*** are appropriate to the learning goals, the learning style of participants and availability of equipment and resources.<br>2.3 Workplace learning opportunities and coaching/ mentoring assistance are provided to facilitate individual and team achievement of competencies.<br>2.4 Resources and timelines required for learning activities are identified and approved in accordance with organizational requirements. |
| 3. Monitor and evaluate workplace learning | 3.1 Feedback from individuals or teams is used to identify and implement improvements in future learning arrangements.<br>3.2 Outcomes and performance of individuals/teams are assessed and recorded to determine the effectiveness of development programs and the extent of additional support.<br>3.3 Modifications to learning plans are negotiated to improve the efficiency and effectiveness of learning.<br>3.4 Records and reports of competence are maintained within organizational requirement. |

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| 4. Develop team commitment and cooperation | 4.1 Open communication processes to obtain and share information is used by team.<br>4.2 Decisions are reached by the team in accordance with its agreed roles and responsibilities.<br>4.3 Mutual concern and camaraderie are developed in the team. |
| 5. Facilitate accomplishment of organizational goals | 5.1 Team members actively participated in team activities and communication processes.<br>5.2 Teams' members developed individual and joint responsibility for their actions.<br>5.3 Collaborative efforts are sustained to attain organizational goals. |

| **Variable** | **Range** |
|---|---|
| Learning and development needs | May include but not limited to:<br>• Coaching, mentoring and/or supervision<br>• Formal/informal learning program<br>• Internal/external training provision<br>• Work experience/exchange/opportunities<br>• Personal study<br>• Career planning/development<br>• Performance appraisals<br>• Workplace skills assessment<br>• Recognition of prior learning |
| Organizational requirements | May include but not limited to:<br>• Quality assurance and/or procedures manuals<br>• Goals, objectives, plans, systems and processes<br>• Legal and organizational policy/guidelines and requirements<br>• Safety policies, procedures and programs<br>• Confidentiality and security requirements<br>• Business and performance plans<br>• Ethical standards<br>• Quality and continuous improvement processes and standards |
| Feedback on performance | May include but not limited to:<br>• Formal/informal performance appraisals<br>• Obtaining feedback from supervisors and colleagues<br>• Obtaining feedback from clients<br>• Personal and reflective behavior strategies<br>• Routine and organizational methods for monitoring service delivery |
| Learning delivery methods | May include but not limited to:<br>• On the job coaching or mentoring<br>• Problem solving<br>• Presentation/demonstration<br>• Formal course participation |

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| | • Work experience and Involvement in professional networks<br>• Conference/seminar attendance and induction |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Demonstrates skills and knowledge to:<br>• identify and implement learning opportunities for others<br>• give and receive feedback constructively<br>• facilitate participation of individuals in the work of the team<br>• negotiate learning plans to improve the effectiveness of learning<br>• prepare learning plans to match skill needs<br>• access and designate learning opportunities |
| Underpinning Knowledge and Attitude | Demonstrates knowledge of:<br>• coaching and mentoring principles<br>• how to work effectively with team members who have diverse work styles, aspirations, cultures and perspective<br>• how to facilitate team development and improvement<br>• methods and techniques for eliciting and interpreting feedback<br>• methods for identifying and prioritizing personal development opportunities and options<br>• career paths and competence standards in the industry |
| Underpinning Skills | Demonstrates skills to:<br>• read and understand a variety of texts, prepare general information and documents according to target audience; spell with accuracy; use grammar and punctuation effective relationships and conflict management<br>• receive feedback and report, maintain effective relationships and conflict management<br>• organize required resources and equipment to meet learning needs<br>• provide support to colleagues<br>• organize information; assess information for relevance and accuracy; identify and elaborate on learning outcomes<br>• facilitation skills to conduct small group training sessions<br>• relate to people from a range of social, cultural, physical and mental backgrounds |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written exam<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the workplace or in a simulated workplace setting |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Improve Business Practice** |
| **Unit Code** | **IND DPP3 19 0613** |
| **Unit Descriptor** | This unit covers the skills, knowledge and attitudes required in promoting, improving and growing business operations. |

| Elements | Performance Criteria |
|---|---|
| 1. Diagnose the business | 1.1 ***Data required*** for diagnosis is determined and acquired.<br>1.2 ***Competitive advantage*** of the business is determined from the data.<br>1.3 ***SWOT analysis*** of the data is undertaken. |
| 2. Benchmark the business | 2.1 Sources of relevant benchmarking data are identified.<br>2.2 ***Key indicators*** for benchmarking are selected in consultation with key stakeholders.<br>2.3 Like indicators of own practice are compared with benchmark indicators.<br>2.4 Areas for improvement are identified. |
| 3. Develop plans to improve business performance | 3.1 A consolidated list of required improvements is developed.<br>3.2 Cost-benefit ratios for required improvements are determined.<br>3.3 Work flow changes resulting from proposed improvements are determined.<br>3.4 Proposed improvements are ranked according to agreed criteria.<br>3.5 An action plan is developed and agreed to implement the top ranked improvements.<br>3.6 ***Organizational structures*** are checked to ensure they are suitable. |
| 4. Develop marketing and promotional plans | 4.1 The practice vision statement is reviewed.<br>4.2 Practice ***objectives*** are developed/ reviewed.<br>4.3 Target markets are identified/ refined.<br>4.4 ***Market research data*** is obtained.<br>4.5 ***Competitor analysis*** is obtained.<br>4.6 ***Market position*** is developed/ reviewed.<br>4.7 ***Practice brand*** is developed.<br>4.8 ***Benefits*** of practice/practice products/services are identified.<br>4.9 ***Promotion tools*** are selected/ developed. |
| 5. Develop business growth plans | 5.1 Plans are developed to increase ***yield per existing client***.<br>5.2 Plans are developed to add new clients. |

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| | 5.3 Proposed plans are ranked according to agreed criteria.<br>5.4 An action plan is developed and agreed to implement the top ranked plans.<br>5.5 Practice work practices are reviewed to ensure they support growth plans. |
| 6. Implement and monitor plans | 6.1 Implementation plan is developed in consultation with all relevant stakeholders.<br>6.2 Indicators of success of the plan are agreed.<br>6.3 Implementation is monitored against agreed indicators.<br>6.4 Implementation is adjusted as required. |

| **Variable** | **Range** |
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| Data required includes: | May include but not limited to:<br>• organization capability<br>• appropriate business structure<br>• level of client service which can be provided<br>• internal policies, procedures and practices<br>• staff levels, capabilities and structure<br>• market, market definition<br>• market changes/market segmentation<br>• market consolidation/fragmentation<br>• revenue<br>• level of commercial activity<br>• expected revenue levels, short and long term<br>• revenue growth rate<br>• break even data<br>• pricing policy<br>• revenue assumptions<br>• business environment<br>• economic conditions<br>• social factors<br>• demographic factors<br>• technological impacts<br>• political/legislative/regulative impacts<br>• competitors, competitor pricing and response to pricing<br>• competitor marketing/branding and products |
| Competitive advantage | May include but not limited to:<br>• services/products<br>• fees<br>• location and timeframe |
| SWOT analysis | May include but not limited to:<br>• internal strengths such as staff capability, recognized<br>• quality<br>• internal weaknesses such as poor morale, |

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| | • under-capitalization, poor technology<br>• external opportunities such as changing market and<br>• economic conditions<br>• external threats such as industry fee structures, strategic<br>• alliances, competitor marketing |
| Key indicators | May include but not limited to:<br>• salary cost and staffing<br>• personnel productivity (particularly of principals)<br>• profitability<br>• fee structure<br>• client base<br>• size staff/principal and overhead/overhead control |
| Organizational structures | May include but not limited to:<br>• Legal structure (partnership, Limited Liability Company, etc.)<br>• organizational structure/hierarchy<br>• reward schemes |
| Objectives should be 'SMART' | May include but not limited to:<br>• S: Specific<br>• M: Measurable<br>• A: Achievable<br>• R: Realistic<br>• T: Time defined |
| Market research data | May include but not limited to:<br>• data about existing clients<br>• data about possible new clients<br>• data from internal sources<br>• data from external sources such as:<br>➢ trade associations/journals<br>➢ Yellow Pages small business surveys<br>➢ libraries<br>➢ Internet<br>➢ Chamber of Commerce<br>➢ client surveys<br>➢ industry reports and secondary market research<br>• primary market research such as:<br>➢ telephone surveys<br>➢ personal interviews and mail surveys |
| Competitor analysis | May include but not limited to:<br>• competitor offerings<br>• competitor promotion strategies and activities<br>• competitor profile in the market place |
| Market position should include data on: | May include but not limited to:<br>• product<br>• the good or service provided<br>• product mix<br>• the core product - what is bought<br>• the tangible product - what is perceived |

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| | • the augmented product - total package of consumer<br>• features/benefits<br>• product differentiation from competitive products<br>• new/changed products<br>• Price and pricing strategies (cost plus, supply/demand, ability to pay, etc.)<br>• Pricing objectives (profit, market penetration, etc.)<br>• cost components<br>• market position<br>• distribution strategies<br>• marketing channels<br>• promotion<br>• promotional strategies<br>• target audience<br>• communication<br>• promotion budget |
| Practice brand | May include but not limited to:<br>• practice image<br>• practice logo/letter head/signage<br>• phone answering protocol<br>• facility decor<br>• slogans<br>• templates for communication/invoicing<br>• style guide<br>• writing style<br>• AIDA (Attention, Interest, Desire and Action) |
| Benefits | May include but not limited to:<br>• features as perceived by the client<br>• benefits as perceived by the client |
| Promotion tools | May include but not limited to:<br>• networking and referrals<br>• seminars<br>• advertising<br>• press releases<br>• publicity and sponsorship<br>• brochures<br>• newsletters (print and/or electronic)<br>• websites<br>• direct mail<br>• telemarketing/cold calling |
| Yield per existing client | May include but not limited to:<br>• raising charge out rates/fees<br>• packaging fees<br>• reduce discounts<br>• sell more services to existing clients |

| Evidence Guide | |
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| Critical Aspects of Competence | Demonstrates skills and knowledge in:<br>• ability to identify the key indicators of business performance<br>• ability to identify the key market data for the business<br>• knowledge of a wide range of available information sources<br>• ability to acquire information not readily available within a business<br>• ability to analyze data and determine areas of improvement<br>• ability to negotiate required improvements to ensure implementation<br>• ability to evaluate systems against practice requirements and form recommendations and/or make recommendations<br>• ability to assess the accuracy and relevance of information |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• data analysis<br>• communication skills<br>• computer skills to manipulate data and present information<br>• negotiation skills<br>• problem solving<br>• planning skills<br>• marketing principles<br>• ability to acquire and interpret relevant data<br>• current product and marketing mix<br>• use of market intelligence<br>• development and implementation strategies of promotion and growth plans |
| Underpinning Skills | Demonstrates skill in:<br>• data analysis and manipulation<br>• ability to acquire and interpret required data, current practice systems and structures and sources of relevant benchmarking data<br>• applying methods of selecting relevant key benchmarking indicators<br>• communication skills<br>• working and consulting with others when developing plans for the business<br>• planning skills, negotiation skills and problem solving<br>• using computers to manipulate, present and distribute information |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level III | |
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| **Unit Title** | **Prevent and Eliminate MUDA** |
| **Unit Code** | **IND DPP3 20 0613** |
| **Unit Descriptor** | This unit of competence covers the knowledge, skills and attitude required by a worker to prevent and eliminate MUDA/wastes in his/her their workplace. It covers responsibility for the day-to-day operation of the work and ensures Kaizen elements are continuously improved and institutionalized. |

| Elements | Performance Criteria |
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| 1. Prepare for work. | 1.1 Work instructions are used to determine job requirements, including method, material and equipment.<br>1.2 Job specifications are read and interpreted following working manual.<br>1.3 ***OHS requirements***, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work.<br>1.4 Appropriate material is selected for work.<br>1.5 ***Safety equipment and tools*** are identified and checked for safe and effective operation. |
| 2. Identify MUDA. | 2.1 Plan of MUDA identification is prepared and implemented.<br>2.2 Causes and effects of MUDA are discussed.<br>2.3 ***Tools and techniques*** are used to draw and analyze current situation of the work place.<br>2.4 Wastes/MUDA are identified and measured based on ***relevant procedures***.<br>2.5 Identified and measured wastes are reported to relevant personnel. |
| 3. Eliminate wastes/MUDA. | 3. 1. Plan of MUDA elimination is prepared and implemented.<br>3. 2. Necessary attitude and ***the ten basic principles for improvement*** are adopted to eliminate waste/MUDA.<br>3. 3. Tools and techniques are used to eliminate wastes/MUDA based on the procedures and OHS.<br>3. 4. Wastes/MUDA are reduced and eliminated in accordance with OHS and organizational requirements.<br>3. 5. Improvements gained by elimination of waste/MUDA are reported to relevant bodies. |
| 4. Prevent occurrence of wastes/MUDA. | 4.1 Plan of MUDA prevention is prepared and implemented.<br>4.2 Standards required for machines, operations, defining normal and abnormal conditions, clerical procedures and procurement are discussed and prepared. |

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| | 4.3 Occurrences of wastes/MUDA are prevented by using ***visual and auditory control methods***.<br>4.4 Waste-free workplace is created using ***5W and 1H***sheet.<br>4.5 The completion of required operation is done in accordance with standard procedures and practices.<br>4.6 The updating of standard procedures and practices is facilitated.<br>4.7 The capability of the work team that aligns with the requirements of the procedure is ensured. |

| **Variable** | **Range** |
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| OHS requirements | May include but not limited to:<br>• Are to be in accordance with legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances.<br>• Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices.<br>• Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with workplace organization.<br>• Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation. |
| Safety equipment and tools | May include but not limited to:<br>• dust masks / goggles<br>• glove<br>• working cloth<br>• first aid<br>• safety shoes |
| Tools and techniques | May include but not limited to:<br>• Plant Layout<br>• Process flow<br>• Other Analysis tools<br>• Do time study by work element<br>• Measure Travel distance<br>• Take a photo of workplace<br>• Measure Total steps<br>• Make list of items/products, who produces them and who uses them & those in warehouses, storages etc.<br>• Focal points to Check and find out existing problems |

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| | • 5S<br>• Layout improvement<br>• Brainstorming<br>• Andon<br>• U-line<br>• In-lining<br>• Unification<br>• Multi-process handling & Multi-skilled operators<br>• A.B. control (Two point control)<br>• Cell production line<br>• TPM (Total Productive Maintenance) |
| Relevant procedures | May include but not limited to:<br>• Make waste visible<br>• Be conscious of the waste<br>• Be accountable for the waste.<br>• Measure the waste. |
| The ten basic principles for improvement | May include but not limited to:<br>• Throw out all of your fixed ideas about how to do things.<br>• Think of how the new method will work- not how it won.<br>• Don't accept excuses. Totally deny the status quo.<br>• Don't seek perfection. A 5o percent implementation rate is fine as long as it's done on the spot.<br>• Correct mistakes the moment they are found.<br>• Don't spend a lot of money on improvements.<br>• Problems give you a chance to use your brain.<br>• Ask "why?" at least five times until you find the ultimate cause.<br>• Ten people's ideas are better than one person's.<br>• Improvement knows no limits. |
| Visual and auditory control methods | May include but not limited to:<br>• Red Tagging<br>• Sign boards<br>• Outlining<br>• Andons<br>• Kanban, etc. |
| 5W and 1H | May include but not limited to:<br>• Who<br>• What<br>• Where<br>• When<br>• Why and How |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Demonstrates skills and knowledge to:<br>• discuss why wastes occur in the workplace<br>• discuss causes and effects of wastes/MUDA in the workplace |

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| | • analyze the current situation of the workplace by using appropriate tools and techniques<br>• identify, measure, eliminate and prevent occurrence of wastes by using appropriate tools and techniques<br>• use 5W and 1H sheet to prevent |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• Targets of customers and manufacturer/service provider<br>• Traditional and kaizen thinking of price setting<br>• Kaizen thinking in relation to targets of manufacturer/service provider and customer<br>• value<br>• The three categories of operations<br>• the 3“MU”<br>• waste/MUDA<br>• wastes occur in the workplace<br>• The 7 types of MUDA<br>• The Benefits of identifying and eliminating waste<br>• Causes and effects of 7 MUDA<br>• Procedures to identify MUDA<br>• Necessary attitude and the ten basic principles for improvement<br>• Procedures to eliminate MUDA<br>• Prevention of wastes<br>• Methods of waste prevention<br>• Definition and purpose of standardization<br>• Standards required for machines, operations, defining normal and abnormal conditions, clerical procedures and procurement<br>• Methods of visual and auditory control<br>• TPM concept and its pillars.<br>• Relevant Occupational Health and Safety (OHS) and environment requirements<br>• Plan and report<br>• Method of communication |
| Underpinning Skills | Demonstrates skills to:<br>• draw & analyze current situation of the work place<br>• use measurement apparatus (stop watch, tape, etc.)<br>• calculate volume and area<br>• use and follow checklists to identify, measure and eliminate wastes/MUDA<br>• identify and measure wastes/MUDA in accordance with OHS and procedures<br>• use tools and techniques to eliminate wastes/MUDA in accordance with OHS procedure<br>• apply 5W and 1H sheet<br>• update and use standard procedures for completion of required operation |

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| | • work with others<br>• read and interpret documents<br>• observe situations<br>• solve problems<br>• communicate<br>• gather evidence by using different means<br>• report activities and results using report formats |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

# NTQF Level IV

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Audit a Heat Treatment Process** |
| **Unit Code** | **IND DPP4 01 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to support a food safety audit that includes heat treatment processes designed to bring about a defined logarithmic reduction of the target organism to ensure safe food. This may include pasteurized product with a nominated refrigerated shelf life and commercially sterile, shelf-stable product. |

| Elements | Performance Criteria |
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| 1. Identify and assess food safety hazards and related control options for heat treatment processes | 1.1. Microbiological food safety hazards that could present a risk in the food at the point of consumption are identified by type, origin and food association level and assessed to determine the significance of the hazard.<br>1.2. ***Heat treatment processes***, ***factors that affect heat distribution and heat penetration*** control requirements and methods are identified to ensure that finished, heat-treated products meet food safety objectives. |
| 2. Confirm that appropriate evidence supports validation of the heat treatment process | 2.1. ***Validation evidence*** and records are reviewed to confirm that an appropriate level of ***validation*** has been applied.<br>2.2. ***Prerequisite programs*** and evidence used by the business to validate the process is identified and assessed to confirm that it is credible and adequate to achieve the food safety objective. |
| 3. Confirm verification of the food safety program for a heat treatment process | 3.1. System records required to support ***verification*** are identified, collected and reviewed.<br>3.2. Business documentation, ***relevant legislation***, ***standards***, ***codes of practice and technical specifications*** are reviewed and inspections are conducted to confirm that facilities and equipment design and components, ***commercial heat processing equipment, packaging*** systems **and** ***product sealing processes*** comply with regulatory and ***business standards***.<br>3.3. Business documentation and ***additional reference material*** are reviewed and inspections are conducted to confirm that operational monitoring, ***test methods*****,** testing procedures and frequency meet regulatory requirements, and industry and business standards. |

| Variable | Range |
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| Heat treatment processes | may include:<br>• retorting systems<br>• pasteurization systems |

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| | • aseptic processing and packaging systems<br>• hot fill systems |
| Validation | refers to obtaining evidence to confirm that a HACCP-based food safety program is complete and effective and will deliver the expected food safety outcomes |
| Validation evidence | confirms that control measures are capable of being consistently effective and may include the application of:<br>• existing Ethiopian legislative requirements<br>• challenge tests<br>• peer reviewed scientific papers<br>• targeted scientific reports<br>• validation already carried out in other jurisdictions and recognized by the responsible authority<br>• mathematical modeling (e.g. predictive microbiology models)<br>• industry codes of practice (where implementation by food business is verified during audits) |
| Verification | refers to methods and procedures used to carry out monitoring, including sampling and testing to provide evidence that the specifications set by relevant legislation and codes of practice continue to be met |
| Business standards | refer to standards or technical specifications set by the system owner based on and in addition to regulatory requirements that relate specifically to food safety |
| Relevant legislation**,** standards**,** codes of practice and technical specifications | specifications relating to heat treatment requirements may include:<br>• relevant sections of the Ethiopian Food Standards Code<br>• Validation and Verification of Heat Treatment Equipment and Processes<br>• international protocols, such as Codex Alimentarius Vol 1B - 1995 Section 2, Recommended International Code of Hygienic Practice for Low-acid and Acidified Low-acid Canned Foods,<br>• Ethiopian Standard for Equipment for the Pasteurization of Milk and Other Liquid Dairy Products - Continuous-flow systems<br>• AQIS Export Control (Milk and Milk Products) Orders<br>• Regulations, codes of practice and guidelines |
| Factors that affect heat distribution and heat penetration | may include:<br>• raw material characteristics, such as:<br>➢ rheology and density<br>➢ particulates and position within container<br>➢ pH<br>• heat treatment method and related equipment (process holding times and temperatures)<br>• heating systems and packaging design |
| Commercial heat processing equipment | may include:<br>• pre-processing equipment<br>• methods to achieve sterilization of plant and packaging material (for aseptic systems) |

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| | • filling equipment<br>• heat treatment systems using both direct and indirect heating methods<br>• packaging systems |
| Packaging | may include:<br>• cans<br>• glass containers<br>• aluminum and plastic semi-rigid and flexible containers<br>• bags<br>• composite packaging<br>• bulk packaging |
| Product sealing processes | may include hermetic sealing in processes, such as canning, or sealing pasteurized products in cartons and other sealed containers |
| Prerequisite programs | Are also referred to as support programs, such as Good Manufacturing Practice (GMP), Good Agricultural Practice (GAP) and Good Hygienic Practice (GHP).<br>Pre-requisite programs can be divided into two categories:<br>Infrastructure and maintenance programs. These may include:<br>• layout, design, construction and amenities of buildings and facilities<br>• supplies of air, water, energy and other utilities<br>• equipment, including sanitary design, preventative maintenance, calibration and cleaning and sanitation<br>• support services, including waste and sewage disposal<br>• pest control<br>Operational prerequisite programs. These may include:<br>• personal hygiene<br>• measures for the prevention of cross-contamination<br>• packaging and labeling procedures<br>• supplier assurance<br>• chemical storage<br>• employee training<br>• document control<br>• internal audit programs<br>• traceability programs<br>• product integrity and security<br>• cold chain management<br>• inspecting and testing regimes, including analytical and microbiological testing<br>• control of non-conforming product, processes and recall programs |
| Test methods | include:<br>• conducting studies of process evaluation<br>• conducting studies of equipment performance |
| Additional reference material | includes:<br>• Ethiopian Food and Drug Administration Guides to Inspections |

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| | • Ethiopian Food and Drug Administration Code of Federal Regulations. Requirements for Establishment Registration, Thermal Process Filling, and Good Manufacturing Practices for Low-Acid Canned Foods and Acidified Foods<br>• Ethiopian Food and Drug Administration Guides to Inspections<br>• Ethiopian Food and Drug Administration Code of Federal Regulations. Requirements for Establishment Registration, Thermal Process Filling, and Good Manufacturing Practices for Low-Acid Canned Foods and Acidified Foods |

| **Evidence Guide** | |
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| Critical aspects of Competence | Must demonstrate skills and knowledge competence to:<br>• identify product-specific risks and typical processing methods for a range of products, including sources of information on heat treatment requirements<br>• participate in audits of HACCP-based food safety programs to demonstrate ability and knowledge of technical aspects of heat treatment processes. |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• regulations, codes of practice, guidelines, technical specifications and where appropriate, specific product heat treatment requirements and relevant standards relating to heat treatment of foods<br>• target organisms that can occur in heat-treated foods and related survival and growth characteristics<br>• principles of heat treatment and application of heat-processing methods to product types<br>• criteria used to specify and evaluate heat treatment for each heat processing method<br>• factors that impact on heat distribution and heat penetration according to heat-processing method<br>• principles of operation of commercial heat-processing equipment, including equipment features required to meet regulatory requirements and critical factors to be controlled to ensure delivery of prescribed heat treatment and related processes<br>• procedural safeguards used to track processing of product<br>• principles of packaging to form a suitable seal and impact of packaging system and heat treatment methods and equipment on process effectiveness and packaging integrity<br>• characteristics of raw materials and pre-processing requirements that impact on the microbiological profile and need to be considered in determining the thermal process<br>• post-processing packaging and handling that impact on the ability to maintain the food safety objective following thermal processing, and related prerequisite programs required to support effectiveness of heat treatment processes |

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| | • food safety risks and controls to avoid post-process contamination of heat-treated product<br>• principles of sampling requirements and test methods to confirm equipment integrity, effectiveness of heat treatment, packaging system and seal integrity and post-processing conditions to meet regulatory, industry and business standards |
| Underpinning Skills | Demonstrates skills to:<br>• interpret and apply relevant legislation, standards, codes of practice and technical specifications relating to heat treatment of foods<br>• identify microbiological food safety hazards that can occur in heat-treated food products<br>• inspect heat treatment plant and equipment to confirm that regulatory, industry and business standards are met<br>• apply principles of heat treatment to assess the suitability of thermal processes and related packaging and storage to achieve the food safety objective and minimise the risk of post-processing contamination<br>• review workplace records and other documentation to verify that the food safety program relating to heat treatment and related processes is being implemented according to the prescribed process<br>• review evidence used by the business to validate the food safety control process |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Apply Basic Process Engineering Principles to Food Processing** |
| **Unit Code** | **IND DPP4 02 0613** |
| **Unit Descriptor** | This unit of competency provides an introduction to process engineering concepts. It covers the skills and knowledge required to map production processes, measure outputs (yields, material variances) and apply an understanding of the basic principles of systems and equipment commonly used in the food processing industry. |

| Elements | Performance Criteria |
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| 1. Map a production process | 1.1. The scope of a production process to be mapped is identified based on ***policies and procedures***.<br>1.2. Appropriate process mapping symbols are selected and used.<br>1.3. A map is developed that identifies the relationship of each step in the process. |
| 2. Calculate yields and efficiencies of a production process | 2.1. Inputs to and outputs of a production processing system are identified.<br>2.2. Information required is collected to monitor performance of a production process.<br>2.3. Yields, efficiencies and material variances are ***calculated***. |
| 3. Apply principles of fluid flow to a production process | 3.1. Fluid properties that affect flow are identified.<br>3.2. Components and related equipment used in the pumping system are identified.<br>3.3. Features of the system design that affect performance of the pumping system are identified.<br>3.4. The effect of pumping on the fluid properties is identified.<br>3.5. The operating capacity of pumping systems used in the production process is established.<br>3.6. Procedures for the safe use of pumping equipment are reviewed and/or established. |
| 4. Apply principles of heat transfer to a production process | 4.1. Types of heat transfer are identified.<br>4.2. Methods and related equipment used to transfer heat are identified.<br>4.3. Types of heat transfer media are identified.<br>4.4. Operating principles of cooling, chilling and freezing processes are identified.<br>4.5. The effect of heat transfer on product/material properties is identified. |

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| | 4.6. The operating capacity of heat transfer equipment used in the production process is established.<br>4.7. Procedures for the safe use of heat transfer equipment are reviewed and/or established. |
| 5. Apply principles of evaporation to a production process | 5.1. Methods and related equipment used for evaporation are identified.<br>5.2. The effect of evaporation on product/material properties is identified.<br>5.3. Tests used to determine the concentration of a liquid are identified.<br>5.4. The operating capacity of evaporation equipment used in the production process is established.<br>5.5. Procedures for the safe use of evaporation equipment are reviewed and/or established. |
| 6. Apply principles of drying to a production process | 6.1. Methods and related equipment used for drying are identified.<br>6.2. The effect of drying on product/material properties is identified.<br>6.3. Tests used to determine moisture content of materials and/or product is identified.<br>6.4. The operating capacity of drying equipment used in the production process is established.<br>6.5. Procedures for the safe use of drying equipment are reviewed and/or established. |
| 7. Apply principles of process control to management of production processes | 7.1. Sensors and instrumentation providing input information to the control system are located.<br>7.2. Consequences of a system malfunction are identified. |

| **Variable** | **Range** |
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| Policies and procedures | Uses of processing equipment and related work processes are consistent with company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements and takes account of Occupational Health and Safety (OHS) and environmental impact |
| Calculation | of yields, efficiencies and material variances may involve:<br>• use of software programs and systems, such as SAP<br>• application of a relevant formula |

| Evidence Guide | |
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| Critical Aspects of Competence | Must demonstrate skills and knowledge competence to:<br>• map a production process<br>• apply engineering principles to a food production context<br>• perform required calculations. |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• the basic operating features and components of pumps commonly used and typical applications, such as:<br>➢ rotodynamic (centrifugal) pumps<br>➢ positive displacement pumps, including reciprocating piston pumps, rotary pumps (including gear and lobe pumps), screw pumps, eccentric rotor pumps (including progressive cavity or mono pumps) and flexible vane pumps<br>➢ related components of the pumping system, including valves, taps and pipe work, and where required, Ethiopian standards and workplace protocols for indicating materials carried by pipe work<br>➢ features in the pumping system design that affects pumping efficiencies, including length of pipe work, number and placement of valves and fittings, height of inlet and discharge points, internal surface and diameter of the pipe<br>• the following terms:<br>➢ pressure and pressure drop<br>➢ velocity<br>➢ head<br>➢ typical applications in the food industry and the heat transfer medium used<br>➢ equipment components of a drying process<br>➢ heat transfer requirements and equipment used in a production process<br>➢ tests carried out to determine process outcomes on material/product<br>➢ operational and safety features of drying equipment<br>➢ inspections required to identify signs of faulty performance and/or wear<br>➢ main types of sensors used in food processing to provide input data to control systems and how these sensors operate |
| Underpinning Skills | Demonstrates skills to:<br>• establish and apply process mapping protocols and symbols used in the workplace to describe a production process<br>• identify the inputs to a production process and the outputs of a production process<br>• identify the data required to calculate yields, efficiencies and material variances |

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| | • locate sources of information in the workplace, such as printing reports from information management systems<br>• calculate yields, efficiencies and material variances using software or application of a formula<br>• identify properties of fluids that affect fluid flow, including viscosity, temperature and size, and distribution of particulates<br>• identify types of pumping equipment appropriate for different types of liquids<br>• identify tests or measures taken to monitor operation of pumps and related performance information<br>• apply information to describe pump system capacity in a production process<br>• identify features in the pumping system design that affects pumping efficiencies, including length of pipework, number and placement of valves and fittings, height of inlet and discharge points, internal surface and diameter of the pipe<br>• identify possible effects of pumping on liquid properties<br>• identify operational and safety features of pumps used in a production process, including inspections required to identify signs of faulty performance and/or wear<br>• review and/or establish procedures to define safe pump operation and maintenance<br>• identify heat transfer methods and types of equipment commonly used in the food industry, such as:<br>  ➢ retorts<br>  ➢ jacketed vessels/kettles<br>  ➢ heat exchangers, including plate, tubular and scraped surface<br>  ➢ cooling tunnels<br>  ➢ refrigeration circuits<br>  ➢ chillers<br>  ➢ freezers<br>• identify typical applications in the food industry and the heat transfer medium used for each heat transfer method<br>• identify the effects of heat transfer on properties of materials/products, including possible consequences where the heat transfer process is not operated within specified parameters<br>• distinguish between conduction, convection and radiation in the application of heat<br>• identify the properties of heat and steam, including an understanding of the terms latent heat, saturated and supersaturated steam<br>• identify the heat transfer requirements and equipment used in a production process, including mapping the stages and equipment used in a heat transfer process and holding stages |

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| | • identify tests or measures taken to monitor performance of heat transfer equipment and related expression of performance information<br>• apply information to describe heat transfer process capacity in a production process<br>• identify operational and safety features of heat transfer equipment used in a production process, including inspections required to identify signs of faulty performance and/or wear<br>• review and/or establish procedures to define safe operation and maintenance of heat transfer processes and equipment used in a production process<br>• identify the effects of evaporation on product, such as:<br>➢ physical property changes such as crystallization, increased solids/viscosity<br>➢ intensification of flavor and concentration of acids<br>➢ changes in microbiological characteristics due to application of heat and reduction of moisture/water activity<br>• identify the equipment components of an evaporation process, such as:<br>➢ heat transfer surface (rising film, falling film, forced circulation and plate)<br>➢ vapor separator<br>➢ vapor condenser and vacuum unit<br>• map the stages and equipment used in an evaporation process<br>• identify tests or measures taken to monitor performance of an evaporation process and related expression of performance information<br>• apply information to describe evaporation process capacity in a production process<br>• identify tests carried out to determine material/product solids and related terms (common test methods include baume, refractive index and brix)<br>• identify the processing parameters, time required to achieve the target result and steam required<br>• identify operational and safety features of evaporation equipment used in a production process, including inspections required to identify signs of faulty performance and/or wear<br>• review and/or establish procedures to define safe operation and maintenance of evaporation processes and equipment used in a production process<br>• identify the effects of drying on product, such as:<br>➢ changes that occur at each stage of the drying process<br>➢ reduction in weight and bulk<br>➢ changes in microbiological characteristics due to application of heat and reduction of moisture/water activity |

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| | • identify the equipment components of a drying process, such as:<br>  ➢ hot air drying (fluidized bed driers, spray driers, belt trough driers, and air lift driers)<br>  ➢ freeze drying (vacuum)<br>• map the stages and equipment used in a drying process<br>• identify tests or measures taken to monitor performance of a drying process and related expression of performance information<br>• describe drying process<br>• identify tests carried out to determine process outcomes on material/product<br>• identify the processing parameters, time and energy required to achieve the target result<br>• identify operational and safety features of drying equipment used in a production process, including inspections required to identify signs of faulty performance and/or wear<br>• review and/or establish procedures to define safe operation and maintenance of drying processes and equipment used in a production process<br>• identify the main types of sensors used in food processing to provide input data to control systems and how these sensors operate<br>• identify the location and operation of sensors and related data input devices to a control system on equipment used in a production process<br>• for a given production process, identify the criticality of system control and consequences of a system malfunction or power outage<br>• develop and/or review procedures to be followed in the event of a system malfunction or power outage<br>• use communication skills to interpret and complete work information to support operations of work team or area<br>• demonstrate and support cooperative work practices within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Apply Raw Materials, Ingredient and Process Knowledge to Production Problems** |
| **Unit Code** | **IND DPP4 03 0613** |
| **Unit Descriptor** | This unit of competency covers skills and knowledge required to apply knowledge of ingredients and processes to troubleshoot typical problems that occur in preparing, processing and/or packaging product. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify and respond to non-conforming ingredients/raw materials | 1.1. Non-conformance in ***raw materials/ingredients*** is identified and reported according to workplace reporting requirements and ***policies and procedures***.<br>1.2. Causes of non-conformance are investigated and reported according to workplace reporting requirements.<br>1.3. Corrective action is determined and implemented within level of responsibility and workplace procedures.<br>1.4. Action is taken to prevent recurrence of non-conformance.<br>1.5. Action is reported according to workplace reporting requirements. |
| 2. Identify and respond to non-conforming product and processes | 2.1. ***Typical processing parameters***, stages and changes due to ***typical reactions*** which occur during ***typical processing and related techniques*** are monitored.<br>2.2. Non-conformance in processing, handling and/or storage is identified and corrective action taken according to workplace requirements.<br>2.3. Causes of non-conformance relating to processing, handling and/or storage are investigated and reported according to workplace reporting requirements and ***legislative requirements***.<br>2.4. Corrective action is determined and implemented within level of responsibility and workplace procedures for ***problem minimization***.<br>2.5. Action is taken to prevent recurrence of non-conformance.<br>2.6. Action is reported according to workplace reporting requirements.<br>2.7. Work is conducted in accordance with workplace environmental guidelines. |

| Variable | Range |
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| Policies and procedures | Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements. |

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| Legislative requirements | Are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, Occupational Health and Safety (OHS), anti-discrimination and equal opportunity |
| Ingredients**/**raw materials | are those used to manufacture product |
| Typical processing and related techniques | include but are not limited to:<br>• raw materials/ingredient dispensing<br>• preparation<br>• mixing and blending<br>• conditioning<br>• primary and further processing<br>• wrapping<br>• packing and storage |
| Typical process parameters | include but are not limited to:<br>• temperature<br>• time<br>• pressure<br>• flow rate |
| Typical reactions | Depend on processing method. Examples include but are not limited to:<br>• gelatinization and hydration |
| Problem minimization | Where recurrence of a problem cannot be prevented, procedures should be established to minimize the likelihood of recurrence and to identify any further incidents |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• describe required quality characteristics for raw materials and ingredients<br>• describe required processes to achieve production specifications<br>• identify common non-conforming materials and ingredients and causes<br>• identify common non-conforming processes and causes<br>• determine and undertake corrective action for non-conformances<br>• complete workplace documentation and report<br>• non-conformances<br>• apply food safety procedures |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• basic composition and function of each main raw material/ingredient used, such as awareness of ingredient grades or types |

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| | • common causes of contamination/unacceptable quality of raw materials/ ingredients<br>• methods used to confirm quality standard, such as accessing information (e.g. certificates of analysis and/or laboratory clearance information)<br>• the effect of variation in raw materials/ingredients on processing stages and final product outcome, including factors likely to cause variation, and scope to adjust or correct for variation at each processing stage<br>• appropriate handling and storage requirements for raw materials/ingredients and final product, and the effect of failing to meet required storage conditions<br>• the changes and reactions that occur through processing stages, including the signs and symptoms of poor/unacceptable processing or equipment operation<br>• factors that affect the shelf-life of product<br>• the inter-relationships between processing stages and the effect of variation in processing parameters on process outcome and on final product, including factors likely to cause variation, and scope to adjust or correct for variation at subsequent process stages<br>• procedures for identifying and isolating non-conforming product<br>• troubleshooting information and techniques<br>• procedures and related documentation required to amend or introduce a new method or procedure, such as short term procedures for amending or updating specifications and processing parameters<br>• reporting requirements and responsibilities<br>• test methods to confirm raw material/ingredient and/or final product quality characteristics where relevant |
| Underpinning Skills | Demonstrates skills to:<br>• identify requirements of ingredient/raw material characteristics within level of responsibility<br>• follow procedures to identify, remove/isolate and report non-conforming ingredients/materials and/or product according to workplace reporting requirements<br>• determine likely causes of non-conformance of ingredients/raw materials<br>• recognize indicators of unacceptable or non-conforming processing, handling and/or storage outcomes<br>• act promptly to identify, remove/isolate and report non-conforming product and/or processes<br>• access and apply workplace information relating to process troubleshooting<br>• investigate non-conformance to determine likely causes and report findings to appropriate personnel |

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| | • identify action required to correct non-conformance and implement within level of responsibility<br>• identify action required to prevent or minimize and control recurrence of non-conformance and implement within level of responsibility<br>• complete workplace records, including reporting non-conformance and documenting corrective actions according to workplace recording procedures<br>• conduct tests to confirm raw material/ingredient and/or final product quality characteristics according to enterprise procedures<br>• use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor<br>• work cooperatively within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Apply an Understanding of Legal Requirements of Food Production** |
| **Unit Code** | **IND DPP4 04 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to ensure that food production operations comply with legal requirements. |

| Elements | Performance Criteria |
|---|---|
| 1. Manage production systems to meet legislative requirements relating to product and processing | 1.1. Relevant ***legislation*** and regulations that apply to food production, packaging and labeling are identified.<br>1.2. The purpose and intent of relevant legislation are identified.<br>1.3. The roles and responsibilities of authorities responsible for administering legislation are identified.<br>1.4. Procedures are established and/or reviewed to support compliance with legal requirements. |
| 2. Manage production facilities to meet legislative requirements relating to food premises, equipment design and storage facilities | 2.1. Relevant legislation and regulations that apply to food premises, storage facilities and equipment are identified.<br>2.2. The purpose and intent of relevant legislation are identified.<br>2.3. The roles and responsibilities of authorities responsible for administering legislation are identified.<br>2.4. Procedures to support compliance with legal requirements are established and/or reviewed. |

| Variable | Range |
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| Legislation | to be covered by this unit includes:<br>• Food Standards Code<br>• Ethiopian standards<br>• food safety legislation (including provisions covering the design of food premises and equipment)<br>• customs and excise legislation (for alcohol-based ingredients/materials)<br>• dangerous goods legislation<br>• import and export legislation<br>• additional legislation as appropriate to product, process and market<br>• environmental protection legislation |

| Evidence Guide | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• identify legal requirements for the packing, production and labeling operations of a food production enterprise |

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| | • assess systems, roles and procedures in place<br>• identify legal requirements for facilities and equipment and assess compliance<br>• establish and/or review procedures to support compliance with legal requirements |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• legal responsibilities of a food processing company relating to product content and packaging<br>• the purpose and intent of relevant legislation<br>• potential hazards that could be introduced as a result of equipment design and configuration<br>• associated risks in handling chemicals and dangerous goods<br>• recording requirements to comply with legislative requirements<br>relevant authorities responsible for administering legislation and their roles |
| Underpinning Skills | Demonstrates skills to:<br>• identify the legal responsibilities of a food processing company, including responsibilities relating to:<br>➢ product content (Food Standards Code)<br>➢ product packaging and labeling, including use of nutritional information panels (Food Standards Code)<br>➢ design requirements of food premises and equipment<br>➢ requirements of storage facilities used for materials, ingredients and final product<br>➢ other requirements as appropriate to the product and/or market (e.g. import and/or export legislation)<br>• identify and/or develop specifications and procedures to ensure that legal responsibilities related to product content and packaging are achieved<br>• inspect plant design to identify potential hazards that could be introduced as a result of equipment design and configuration, such as overhead pipes or equipment where dust could collect and fall into food<br>• where hazards are identified, apply the hierarchy of control to identify opportunities to remove or control the risk<br>• identify storage facilities across a production site<br>• identify the dangerous goods stored on site and confirm that storage of these goods (type and quantity) meets legal requirements<br>• confirm that employees required to handle chemicals and dangerous goods are advised of the associated risks, that this information is available in a form appropriate to the audience and that material safety data sheets are available<br>• develop and/or review recording systems to confirm compliance with legislative requirements and ensure that employees responsible for recording information are informed of these responsibilities |

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| | • establish internal review/audit procedures to confirm that legislative responsibilities are met<br>• identify the relevant authority responsible for administering the legislation<br>• identify the rights and responsibilities of related officers to access the production site<br>• use communication skills to interpret and complete work information to support operations of work team or area<br>• demonstrate and support cooperative work practices within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Identify, Evaluate and Control Food Safety Hazards** |
| **Unit Code** | **IND DPP4 05 0613** |
| **Unit Descriptor** | This unit knowledge skills and attitudes to identify, evaluate and control food safety hazards |

| Elements | Performance Criteria |
|---|---|
| 1. Identify food safety hazards in a food business | 1.1. ***Biological food safety hazards*** that could present a risk in the food at the point of consumption are identified by type, origin and food association and assessed to determine risk level and control requirements.<br>1.2. Intrinsic and extrinsic ***chemical food safety hazards*** that could present a risk in the food at the point of consumption, including toxin presence, are identified by type, origin and food association and assessed to determine risk level and control requirements.<br>1.3. ***Physical food safety hazards*** that present a risk in food are identified and assessed to determine control requirements. |
| 2. Control food safety hazards in a food business | 2.1. Processing hazards and related control measures and ***critical control points*** and ***critical limits***, monitoring and recording ***growth requirements*** **and other** requirements are established and validated to eliminate or reduce ***food safety hazards*** to ***acceptable levels***.<br>2.2. Food storage and handling requirements necessary to eliminate or reduce food safety hazards are determined.<br>2.3. Personal hygiene practices required to eliminate or reduce food safety hazards are established.<br>2.4. Cleaning and sanitation, housekeeping and pest control practices and procedures required to prevent or reduce food safety hazards are established.<br>2.5. Other ***prerequisite programs*** are developed to eliminate or reduce food safety hazards to acceptable levels. |

| Variable | Range |
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| Biological food safety hazards | include but are not limited to:<br>• Salmonella spp<br>• Campylobacter jejuni<br>• Bacillus cereus<br>• Clostridium perfringens<br>• Clostridium botulinum<br>• Cryptosporidium<br>• Pathogenic escherichia coli<br>• Giardia |

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| | • Listeria moncytogenes<br>• Shigella spp<br>• Staphylococcus aureus<br>• Vibrio parahaemolyticus<br>• Yersinia enterocolitica<br>• Hepatitis A virus<br>• Norwalk virus<br>Classifications by type of micro-organism include:<br>• bacteria<br>• viruses<br>• moulds/fungi<br>• parasites<br>• algae |
| Chemical food safety hazards | Common origins of chemical contamination may include:<br>• cleaning chemicals<br>• pesticides<br>• veterinary residues<br>• chemical additives<br>• allergenic substances<br>• toxic metals<br>• nitrites, nitrates and N-nitroso compounds<br>• polychlorinated biphenyls (PCBs)<br>• plasticizers and packaging migration<br>• phytotoxins<br>• zootoxins |
| Physical food safety hazards | refer to objects not normally found in food which may cause illness or injury to the consumer |
| Critical control point | is a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level |
| Critical limit | refers to criterion which separates acceptability from unacceptability |
| Growth requirements | Factors which influence the growth of pathogenic micro-organisms may include:<br>• temperature<br>• water activity<br>• gases<br>• pH<br>• time<br>• moisture<br>• nutrients |
| Food safety hazard | is a biological, chemical, or physical agent in, or condition of, food with the potential to cause an adverse health effect in humans (defined in 'Hazard Analysis and Critical Control Point System and Guidelines for its Application', Codex Alimentarius Commission) |

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| Acceptable levels | define the level of a particular hazard in the end product that is acceptable to ensure food safety. Acceptable levels are typically defined by:<br>• the Food Standards Code<br>• commonwealth, state or territory legislation or codes<br>• industry codes of practice<br>• international protocols (CODEX Alimentarius)<br>• customer food safety requirements (including intended use) |
| Prerequisite programs | are also referred to as support programs, such as Good Manufacturing Practice (GMP), Good Agricultural Practice (GAP) and Good Hygiene Practice (GHP).<br>Prerequisite programs can be divided into two categories.<br>Infrastructure and maintenance programs. These may include:<br>• layout, design and construction of buildings and facilities<br>• supplies of air, water, energy and other utilities<br>• equipment, including preventative maintenance, sanitary design and accessibility for maintenance and cleaning<br>• support services, including waste and sewage disposal<br>Operational prerequisite programs. These may include:<br>• personal hygiene<br>• cleaning and sanitation<br>• pest control<br>• measures for the prevention of cross-contamination<br>• packaging and labeling procedures<br>• supplier assurance<br>• chemical storage<br>• employee training<br>• maintenance<br>• calibration<br>• document control<br>• internal audit programs<br>• traceability and recall programs<br>• on-farm food safety schemes<br>• inspecting and testing regimes, including analytical and microbiological testing |
| Licensing**/**certification requirements | are determined by system owners |
| Food supply chain | refers to a sequence of stages and operations involved in the production, processing, distribution and handling of food from primary production to consumption |
| Validation | refers to obtaining evidence to confirm that a HACCP-based food safety program is complete and effective and will deliver the expected food safety outcomes |
| Validation evidence | confirms that control measures are capable of being consistently effective and may include the application of:<br>• existing Ethiopian legislative requirements<br>• challenge tests |

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| | • peer reviewed scientific papers<br>• targeted scientific reports<br>• validation already carried out in other jurisdictions and recognized by the responsible authority<br>• mathematical modeling (e.g. predictive microbiology models)<br>• industry codes of practice (where implementation by food business is verified during audits) |

| **Evidence Guide** | |
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| Critical Aspects of Competence | select a food supply chain and identify:<br>• known biological food safety hazards that could occur across the chain and could present a risk in food at the point of consumption<br>• likely patterns of growth and transmission from source of contamination to onset of consumer symptoms for pathogens likely to occur in the supply chain, including threshold levels<br>• sources of chemical and physical contamination that could present a food safety risk at the time of food consumption, across the chain<br>• impact and indicators of the presence of biological or chemical food safety hazards throughout the food chain<br>• acceptable levels of contamination. These may be established by reference to relevant legislation and/or reference to system requirements<br>• select one stage in the food supply chain (which must be a medium or high risk business or process) and establish or validate control measures and verification records and procedures. |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• sources of advice and research on foods, processing methods, production technologies and associated food safety hazards and control methods<br>• ways in which food can cause illness and injury, including incidence and trends in food-borne illness<br>• intrinsic and extrinsic factors that can impact on food safety<br>• common biological food safety hazards (including toxin production and spore formation) and conditions required for survival and growth of each, including growth rates, transmission routes, likely carriers and threshold levels<br>• sources of information on acceptable (and legal) levels of biological, chemical and physical contamination<br>• food supply chains and potential of a breakdown in control at one point to impact other parts of the chain<br>• survival and growth requirements of biological food safety hazards<br>• common allergenic substances as described by the Food Standards Code (and may be additionally defined by system owners) |

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| | • common control methods necessary to eliminate or reduce the risk of food-borne illness to acceptable levels for each common pathogen, including the role of food storage, temperature control, preservation and process methods, traceability, product shelf-life, cleaning and sanitation, and pest control<br>• methods to detect and minimize the risk of food contamination by personal carriers, including convalescent and symptomless carriers, and related minimum legal illness reporting requirements and personal hygiene procedures<br>• the role of microbiological sampling, swabbing and testing in assessing the presence of biological contamination<br>• methods to determine the appropriateness and effectiveness of control measures and critical limits, including identifying the effect of control measures on the identified food safety hazard, method and feasibility of monitoring, the relationship to other control measures, and the severity of consequences and required corrective action in the event of failure of control<br>• types and causes of acute and chronic chemical food borne illness<br>• the food safety and legal impact of chemical contamination, including residual agricultural and environmental chemicals, residual industrial (including cleaning) chemicals, and chemical contamination as a result of packaging methods and materials<br>• physical hazards that pose a food safety risk<br>• common control methods to eliminate or reduce the risk of chemical or physical food-borne illness to acceptable levels for each common form of chemical and physical food safety hazard, including:<br>➢ chemicals that pose a food safety risk<br>➢ common food allergens<br>➢ physical hazards<br>➢ the role and requirements of prerequisite programs and procedures to eliminate, prevent or reduce biological, chemical and physical food safety hazards to acceptable levels |
| Underpinning Skills | Demonstrates skills to:<br>• interpret and apply relevant legislation, codes of practice and technical standards<br>• identify biological, chemical and physical food safety hazards<br>• determine critical control points and critical limits for identified hazards<br>• establish the required procedures, systems and records to monitor critical control points in order to demonstrate that the critical control point is in control<br>• specify required corrective actions and corrections to be taken when critical limits are not achieved |

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| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Identify the Physical and Chemical Properties of Materials, Food and Related Products** |
| **Unit Code** | **IND DPP4 06 0613** |
| **Unit Descriptor** | This unit covers the skills and knowledge required to identify the physical and chemical properties of materials, food and related products. It requires application of this knowledge to a production environment. |

| Elements | Performance Criteria |
|---|---|
| 1. Apply understanding of common physical phenomena in the food industry | 1.1. An understanding of common physical phenomena is applied to explain relevant changes that occur to ingredients and product through the production process.<br>1.2. Information on the changes that occur is communicated to others in appropriate formats. |
| 2. Apply an understanding of the physical states of matter | 2.1. The three states of matter and the atomic changes that occur at each phase and ***molecular structure are identified***.<br>2.2. The behavior of each type of matter and its relationship to the production process is described.<br>2.3. The relationship between pressure and temperature in phase transition is identified. |
| 3. Apply an understanding of common food science principles to a production process | 3.1. The significance of pH for processing, food safety and cleaning applications is identified.<br>3.2. The reactions and properties of carbohydrates, proteins and fats can be tracked through a given process.<br>3.3. The properties of common emulsions, suspensions and solutions can be described.<br>3.4. Common chemical reactions that occur, factors required to cause a reaction and the effect of reactions can be identified.<br>3.5. Safe work procedures for processes requiring ***handling and processing of product and materials***, chemicals and/or involving chemical reactions are reviewed and/or established. |
| 4. Communicate and interpret technical information | 4.1. Appropriate technical terms are used to communicate information on properties of food and materials commonly used in the food industry.<br>4.2. Test results and reporting formats are interpreted and applied to communicate information on composition, properties and reactions. |

| Variable | Range |
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| Identification of molecular structure | Identification of molecular structure can be supported by others and does not necessarily involve use of microscopes in a laboratory |
| Handling and processing of product and materials | Handling and processing of product and materials is consistent with company standards and requirements, legislative requirements, codes, industrial awards and agreements |

| Evidence Guide | |
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| Critical Aspects of Competence | Evidence of ability to:<br>• identify physical and chemical characteristics of food materials and the impacts of production processes on these characteristics<br>• identify common tests and measures to assess food materials<br>• identify the characteristics of acids and bases and their application in food processing<br>• identify the basic molecular structures of carbohydrates, proteins and fats<br>• distinguish the difference between solutions, suspensions and colloidal systems<br>• identify hazards and control methods in managing hazardous materials<br>• communicate technical information using correct technical terms, flow charts and sketches |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• physical characteristics or phenomena that occur through processing and products and processes where these phenomena can be observed<br>• tests commonly used to measure these phenomena and related units of measurement<br>• molecular changes that occur in states of matter<br>• transition phases that apply in a given production process<br>• role of temperature and pressure in the transition process<br>• differences between a strong acid and a concentrated acid and related units of measurement<br>• classifications of commonly used materials, ingredients and indicators according to ph<br>• typical strengths and concentration levels required for acids and bases commonly used in a production process<br>• basic molecular structures of carbohydrates, proteins and fats<br>• difference between solutions, suspensions and colloidal systems<br>• typical applications of solutions, suspensions and colloidal systems in food processing<br>• factors that the affect stability of colloidal systems<br>• common chemical reactions that occur in food processing<br>• role of enzymes in generating biological reactions |

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| | • safety hazards and control methods<br>technical information resources |
| Underpinning Skills | identify physical characteristics or phenomena that occur through processing, including the following common physical phenomena, and any additional phenomena appropriate to the production process:<br>• shear and strain<br>• friction<br>• surface tension<br>• pressure<br>• crystallization<br>• total solids<br>• heat and temperature<br>• relative humidity<br>• work/energy input<br>• viscosity<br>• particle size<br>• melting points, boiling points, freezing points<br>• dew/condensation point<br>• other phenomena as appropriate to product/process<br>• identify products and processes where these phenomena can be observed<br>• based on phenomena that can be observed in a production process, develop explanatory sketches or flow charts to communicate how these phenomena affect product and process<br>• identify tests commonly used to measure these phenomena and related units of measurement<br>• identify molecular changes that occur in states of matter, and apply this to an understanding of common applications, such as refrigerant or freeze drying<br>• for transition phases that apply in a given production process, identify the role of temperature and pressure in the transition process<br>• identify the difference between acids and bases<br>• classify commonly used materials, ingredients and indicators according to pH<br>• identify the difference between a strong acid and a concentrated acid and related units of measurement used to describe these acids<br>• identify typical strengths and concentration levels required for acids and bases commonly used in a production process (e.g. cleaning agents)<br>• for cleaning agents, identify compatibility with equipment surface materials<br>• identify the significance of pH for processing, food safety and cleaning applications |

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| | • identify the basic molecular structures of carbohydrates, proteins and fats<br>• identify the processing stages designed to affect the structure of these compounds (e.g. hydrogenation or denaturing proteins in cooking processes of oil)<br>• distinguish the difference between solutions, suspensions and colloidal systems. Colloidal systems include:<br>➢ emulsions (oil in water/water in oil)<br>➢ sols (solid-liquid/solid-solid)<br>➢ gels<br>➢ foams (gas-liquid/gas-solid)<br>• identify typical applications of solutions, suspensions and colloidal systems in food processing<br>• distinguish between dispersed particles and the dispersion medium in colloids<br>• identify factors that the affect stability of colloidal systems, including the stages in a production process that can cause a change in the structure of a colloid<br>• identify common chemical reactions that occur in food processing, including both spontaneous and controlled reactions (reactions to be covered include oxidation, enzymic, Maillard and acid-based reactions, and other reactions relevant to a given product type and production process)<br>• identify the role of enzymes in generating biological reactions (e.g. amylase in bread)<br>• identify safety hazards and control methods required when handling chemicals and working with processes that involve chemical reactions<br>• review and/or develop workplace procedures to include advice on hazards and related instructions on control methods, including advice on action required in the event of an incident such as a chemical spill or an emergency<br>• read and interpret technical information to describe food properties and/or reactions, including recognition and application of appropriate units of measurement and terms<br>• use communication skills to interpret and complete work information to support operations of work team or area<br>• demonstrate and support cooperative work practices within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Carry out Sampling and Interpret Tests for Cheese Production** |
| **Unit Code** | **IND DPP4 07 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to carry out sampling and basic testing, and to interpret the results, for cheese production. |

| Elements | Performance Criteria |
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| 1. Implement sampling procedures in cheese making | 1.1 Sampling points for physical, chemical and microbial properties are identified and documented.<br>1.2 An appropriate sampling size is determined.<br>1.3 ***Sampling tools and equipment*** is selected and sterilized.<br>1.4 The sampling plan or ***sampling requirement*** is documented and implemented.<br>1.5 Safety hazards and control methods, ***legislations*** and ***policies and procedures*** are implemented. |
| 2. Monitor chemistry in cheese making | 2.1 An acidity (either pH or titratable acidity) profile is recorded for each stage in the production process.<br>2.2 Tests are carried out at stages for indicators, including salt levels, moisture levels and fat levels.<br>2.3 Whey content is analyzed for fat to gauge efficiency of curd cutting and yield potential.<br>2.4 Safe work procedures for processes requiring handling of chemicals and/or involving chemical reactions in cheese making are reviewed and/or established. |
| 3. Monitor microbiological changes through the cheese making process | 3.1 Samples are prepared for testing.<br>3.2 Serial dilutions are accurately and aseptically carried out.<br>3.3 Stained specimens are compared to reference samples to identify bacterial composition.<br>3.4 Tests are performed on cultures to ensure they have adequate activity before inoculating the vat,<br>3.5 Observations are made and data recorded for yeasts and moulds, total coli forms and staphylococci.<br>3.6 Sampling and testing are carried out for inhibitory substances in milk.<br>3.7 Whey is sampled for bacteriophage levels and the results interpreted. |
| 4. Carry out testing and interpret results to make adjustments to cheese making processes | 4.1 ***Raw milk quality tests***, tactile and visual senses are used to detect physical and chemical changes during cheese making.<br>4.2 Organoleptic properties of final cheese product are evaluated using sensory testing. |

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| | 4.3 Test results of ***cheese tests*** for different ***cheese types*** classified based on ***cheese classification criteria*** and reporting formats for information on composition, properties and reactions are recorded and interpreted.<br>4.4 Recommended specifications for physical, chemical and microbial properties are documented.<br>4.5 Yield efficiency is evaluated by comparing to established process control parameters.<br>4.6 Specifications are referenced against test data.<br>4.7 Changes to cheese making process are implemented based on test results. |

| **Variable** | **Range** |
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| Sampling tools and equipment | may include:<br>• Personal Protective Equipment (PPE)<br>• sampling frames<br>• sampling tubes<br>• weighted sample bottles<br>• variety of sterile containers<br>• milk samplers<br>• cheese triers |
| Sampling requirements | may include a range of sampling plans which apply to fresh milks, processing milk and production stages for the range of cheeses |
| Legislation | relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, Occupational Health and Safety (OHS), anti-discrimination and equal opportunity |
| Policies and procedures | Work is carried out according to:<br>• company procedures<br>• regulatory and licensing requirements<br>• legislative requirements<br>• industrial awards and agreements |
| Raw milk quality tests | may include:<br>• organoleptic<br>• total plate counts<br>• coli forms<br>• psychrotrophes<br>• somatic cell counts<br>• rapid test for inhibitors<br>• disk assay<br>• composition (fat and protein, casein, whey protein and non-protein nitrogen, minerals and salts)<br>• PH. |

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| Cheese tests | may be required for:<br>• pH<br>• milk fat<br>• cheese salt<br>• culture activity test<br>• bacteriophage detection<br>• inhibitory substances (growth inhibition, enzymatic colorimetric, microbial receptor assays and immunoassays)<br>• rennet activity and microbiological analysis (yeasts and moulds, total coli forms and staphylococci) |
| Cheese types | may include any type of fermented cheese product, including:<br>• acid-coagulated (e.g. Cottage and cream cheese)<br>• acid/heat-coagulated (e.g. Ricotta)<br>• rennet-coagulated (e.g. Cheddar, Parmesan, Gouda, Swiss and Camembert) |
| Cheese classification criteria | may include:<br>• species of animal<br>• milk standardization process<br>• coagulation<br>• moisture level<br>• pH control method<br>• acidity<br>• salting procedures<br>• ripening procedures<br>• type of rind<br>• texture<br>• melting properties |
| Principles of optimizing yield | include<br>• obtain highest moisture in non-fat substance (MNFS) with good quality<br>• standardize milk protein to fat ratio (P/F) to obtain maximum value for milk components<br>• minimize fat and protein losses in the whey |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Demonstrates skills to:<br>• Implement sampling procedures in cheese making<br>• Monitor chemistry in cheese making<br>• Monitor microbiological changes through the cheese making process<br>• Carry out testing and interpret results to make adjustments to cheese making processes. |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• use of technical terms used to communicate information on properties of food and materials commonly used in the food industry |

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| | • physical characteristics or phenomena that occur through cheese processing, including:<br>  ➢ chemistry (e.g. acidity, calcium phosphate and salt levels)<br>  ➢ microbiological counts<br>  ➢ handle and feel of the product<br>  ➢ total solids (or moisture)<br>  ➢ heat and temperature<br>  ➢ taste, smell and appearance of the final cheese product<br>• the processes where characteristics and phenomena can be observed<br>• processes for the making of different types of cheese<br>• the processing stages designed to affect the structure of these compounds (e.g. the use of fermentation to coagulate the casein micelles for acid coagulated cheeses compared to the use of rennet for rennet coagulated cheeses)<br>• common chemical reactions that occur, factors required to cause a reaction, and the effect of reactions are identified for cheese making, including both spontaneous and controlled reactions, such as:<br>  ➢ oxidation<br>  ➢ enzymic<br>  ➢ Millard<br>  ➢ acid-based reactions<br>  ➢ other reactions relevant to a given cheese type and production process<br>• physical changes that occur to ingredients and product through cheese making<br>• reactions and properties of carbohydrates, proteins and fats through the cheese making process<br>• behavior of each type of matter and its relationship to the production process<br>• changes in acidity through the cheese making process and its influence on spoilage, moisture and mineral content, texture and flavor<br>• temperature control and its impact throughout a cheese making process<br>• acidity ranges for the different types of cheeses<br>• the significance of fermentation for the control of spoilage and pathogens in cheese, and its influence on moisture levels, mineral content, texture and flavor<br>• the basic molecular structures of carbohydrates, proteins and fats<br>• the role of enzymes in generating biological reactions (e.g. the use of rennet as a coagulating agent)<br>• coagulation time and setting time for rennet<br>• factors that influence syneresis and its importance in cheese making<br>• types of microbial cells and their components and functions |

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| | • the main types of microorganisms and their activity in cheese making, both those that enhance the process and those that impact negatively on cheese characteristics<br>• types of pathogenic bacteria that can be present in milk and cheese products<br>• sampling requirements for cheese making<br>• pH, moisture and salt gradients in brine salted cheese (need for homogeneity in sampling)<br>• buffering in milk and the role of casein and phosphate levels<br>• basic molecular structures of carbohydrates, proteins and fats<br>• disinfection and sterilization as applied to practical aspects of microbiological diversity and growth<br>• microorganisms of significance in the production and spoilage of cheese<br>• testing methods and interpretation of results for salmonella, staphylococcus, listeria and E. coli in raw milk cheese<br>• testing methods and interpretation for bacteriophage in whey<br>• chemical and physical methods available for controlling microbial growth<br>• safety hazards and control methods<br>• technical information resources. |
| Underpinning Skills | • apply sampling procedures in relation to the process chart for a cheese product<br>• sample hard cheeses using a cheese trier or sample shaft<br>• prepare a liquid cheese homogenate and a sample from the homogenate for microbiological analysis<br>• interpret measurements at stages in a cheese making process covering:<br>➢ Salt to Moisture ratio (S/M)<br>➢ Moisture in the Non Fat Substance (MNFS)<br>➢ Fat in the Dry Matter (FDM)<br>• safely perform tasks for the isolation, identification and cultivation of microorganisms<br>• set up and use microscope slides and a microscope<br>• apply the use of the Gram reaction in the identification of common types of bacteria<br>• interpret test results for yeasts and moulds, coli forms and staphylococci<br>• correctly and safely perform tests to assist in the identification of microorganisms<br>• apply methods for the control of growth of microorganisms<br>• identify safety hazards and control methods required when handling chemicals and working with processes that involve chemical reactions<br>• review and/or develop workplace procedures to include advice on hazards and related instructions on control methods, including advice on action required in the event of an incident, such as a chemical spill or an emergency |

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| | • read and interpret technical information to describe food properties and/or reactions, including recognizing and applying appropriate units of measurement and term<br>• interpret a sampling plan. |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Implement and Review the Processing of Market Milk and Related Products** |
| **Unit Code** | **IND DPP4 08 0613** |
| **Unit Descriptor** | This unit covers the skills and knowledge required to implement and review production standards and procedures for the processing of market milk and related products. |

| Elements | Performance Criteria |
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| 1. Receive fresh milk and blend using standard industry data | 1.1 Receival and testing procedures for milk from farm are applied.<br>1.2 A safe working environment is provided for milk receival and testing.<br>1.3 Received milk is tested and data is recorded and stored.<br>1.4 Received milk is stored under correct conditions and adjusted or blended based on test data. |
| 2. Monitor the manufacture of market milk and related products to meet quality standards | 2.1 The specifications for the end product are determined.<br>2.2 A ***safe work procedures*** **and** environment is provided for the manufacture of product samples.<br>2.3 Resource requirements, ***materials and equipment*** for the preparation and manufacture of ***market milk and related products*** are identified.<br>2.4 A production schedule to ensure all resources and requirements are available and meet company requirements is used.<br>2.5 Critical factors in the preparation and manufacture of market milk and related products are addressed.<br>2.6 ***Legislation*** **and** data requirements appropriate for food safety, quality and production standards are identified.<br>2.7 Data collection points consistent with equipment capabilities and data requirements are established.<br>2.8 ***Policies and procedures*** are developed to deal with non-conformance in relation to process and the final product.<br>2.9 Market milk and related product manufacture are carried out and monitored. |
| 3. Report problems arising from the preparation and manufacture of market milk and related products | 3.1 Potential product defects and their causes, which may arise in the preparation and manufacture of market milk and related products, are identified.<br>3.2 System to identify defects in the preparation and manufacture of market milk and related products, and to apply adjustments to process/equipment is implemented and reviewed. |

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| | 3.3 Problems are reported to designated person according to company policies and procedures. |

| Variable | Range |
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| Safe work procedures | Examples of specific task related procedures may include:<br>• handling of chemicals<br>• use of PPE. |
| Materials and equipment | Food processing chemicals, Food processing equipment, fermenting vessels, centrifuge, heat exchangers, homogenizer, mixing vats, sanitary pumps, conveying belts, fillers and aseptic fillers. |
| Market milk and related products | Includes standardized milk, whole fresh milk, recombined milk, vitalized milk, irradiated milk, mineralized milk, reconstituted or rehydrated milk, skimmed milk, heat treated or UHT milk, flavored milks. |
| Legislation | Requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes the Food Standards Code including labeling, weights and measures legislation; and legislation covering food safety, environmental management, occupational health and safety, anti-discrimination and equal opportunity. |
| Policies and procedures | Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements. |

| Evidence Guide | |
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| Critical Aspects of Competence | Must demonstrate knowledge and skills competence to:<br>• implement process control procedures and data collection to process milk and related products;<br>• carry out sensory evaluation and product testing;<br>• diagnose and report problems for manufacturing; and<br>• review the production system for food safety and quality and environmental impact |
| Underpinning Knowledge and Attitudes | • the statutory compositional requirements for the different types of market milk and related products<br>• domestic and export markets for market milk and related products<br>• production systems used for the preparation and manufacture of market milk and related products<br>• formulation of market milk and related products<br>• role of major ingredients found in market milk and related products<br>• the purpose of each process, and processing sequence, used in the preparation and manufacture of market milk and related products<br>• principles of operation of equipment and accessories used in the preparation and manufacture of market milk and related products are determined |

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| | • output of each of the processes used in the preparation and manufacture of market milk and related products are identified<br>• production system requirements for the preparation and manufacture of each market milk and related products are determined<br>• the resource requirements for the preparation and manufacture of market milk and related products<br>• chemical and physical hazards which may affect milk<br>• procedures for milk storage, handling and preparation<br>• safe work procedures<br>• sanitation and hygiene procedures<br>• HACCP principles and critical limits in a HACCP program<br>• identification of CCPs and critical limits<br>• water and energy use and recycling in processing<br>• regulatory requirements associated with the processing of market milk and related products<br>• environmental impacts of the food processing operation |
| Underpinning Skills | Demonstrate skills to:<br>• implement handling and storage procedures for market milk and related products<br>• establish CCPs and critical limits for each step in production of market milk and related products<br>• monitor production of market milk and related products<br>• apply procedures to ensure the product is fit for further processing and meets regulatory, food safety and quality requirements<br>• overview the implementation of the HACCP plan<br>• carry out product sampling and testing according to the HACCP plan and operational procedures<br>• provide relevant information to work colleagues to facilitate understanding of, and compliance with, the Ethiopian Standards and associated regulations<br>• take action to improve own work practice as a result of self-evaluation, feedback from others, or changed work practices, regulations or technology<br>• use technology to access information, prepare reports, and to access and prepare relevant data<br>• implement workplace OHS procedures |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Implement and Review the Preparation of Milk for Processing** |
| **Unit Code** | **IND DPP4 09 0613** |
| **Unit Descriptor** | This unit covers the skills and knowledge required to implement and review the standards and procedures for receiving and preparing milk for product manufacture. |

| Elements | Performance Criteria |
|---|---|
| 1. Receive fresh milk and blend using standard industry data | 1.1 Receival and testing procedures for milk from farm are applied.<br>1.2 A safe working environment is provided for milk receival and testing.<br>1.3 Received milk is tested and data is recorded and stored.<br>1.4 Received milk is stored under correct conditions and adjusted or blended based on test data. |
| 2. Implement procedures for separation, homogenisation and pasteurisation of received milk in preparation for further processing | 2.1 The preferred sequence of activity to prepare the system for operation is implemented.<br>2.2 A production schedule is implemented to ensure all resources.<br>2.3 ***Materials are used to manufacture milk products*** and requirements are available and meet company requirements.<br>2.3 Data collection points consistent with equipment capabilities and data requirements are documented.<br>2.4 Procedures are implemented to deal with non-conformance in relation to process and the final product.<br>2.5 Production system is set to operating specifications before and during preparation and testing of received milk.<br>2.6 Process control system for the preparation of milk for further processing is implemented. |
| 3. Diagnose, rectify and/or report problems arising from the preparation of milk for manufacture | 3.1 ***Manufactured dairy products*** tests are interpreted according to enterprise procedures.<br>3.2 System used is implemented and monitored to identify defects and abnormalities in delivered milk.<br>3.3 Adjustments are implemented to process/equipment as identified.<br>3.4 Problems are recorded and reported according to company policies and procedures. |
| 4. Review production processes for preparing milk for further processing | 4.1 The Critical Control Points (CCPs) and critical limits for product safety are reviewed.<br>4.2 A sampling plan is developed and implemented.<br>4.3 Food tests are undertaken to check product composition and compliance with further manufacturing requirements. |

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| | 4.4 ***Policies and procedures***, ***Legislations*** and ***OHS requirements*** are reviewed for food safety and quality.<br>4.5 Safe work systems for processing are reviewed,<br>4.6 Environmental impacts and energy efficiencies are reviewed for preparation of milk for processing. |

| **Variable** | **Range** |
|---|---|
| Materials used to manufacture milk products | Dairy products processing equipment to prepare milk for further processing may include fermenting vessels, butter and cream centrifuge, heat exchangers, homogenizers, aseptic fillers, mix tanks, autoclaves, vacuum evaporation and spray drying equipment. |
| Manufactured dairy products | These include condensed milk, cream and butter, milk powder, butter, cheese, dairy blends, yoghurt, anhydrous milk fat and milk products with amendments or additives. |
| Policies and procedures | Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements. |
| Legislation | are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes the Food Standards Code including labeling, weights and measures legislation; and legislation covering food safety, environmental management, occupational health and safety, anti-discrimination and equal opportunity. |
| OHS requirements | • legislation, regulations, Codes of practice<br>• Safety Data Sheets (SDSs)<br>• enterprise and process specific occupational health and safety requirements. |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Must demonstrate knowledge and skills competence to implement and review the processes associated with:<br>• implementing process control procedures and data collection to prepare milk for further processing;<br>• carrying out food testing of raw and processed milk;<br>• diagnosing and reporting problems for manufacturing of dairy product; and<br>• reviewing the production system for food safety and quality and environmental impact |
| Underpinning Knowledge and Attitudes | Demonstrate Knowledge of:<br>• the various components of milk<br>• the hazards associated with raw milk<br>• the various spoilage organisms associated with milk<br>• compositional requirements for a range of milk based products<br>• the testing and processing stages in preparing milk for further processing |

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| | • the risks to milk product quality from incorrect preparation and handling of fresh milk<br>• output of each of the processes used in the preparation of milk for further processing<br>• compositional requirements for milk prepared for further processing for a range of processed milk products<br>• principles of operation of equipment and accessories used in the preparation of milk for further processing<br>• critical factors in the testing and preparation of received milk for further processing into dairy products<br>• processes used in the preparation and manufacture of non-fermented dairy products<br>• processes used to prepare milk for further processing<br>• resource requirements for the preparation of milk for further processing<br>• potential product defects and their causes which may arise in the preparation of milk for further processing<br>• milk sampling and testing<br>• data requirements appropriate for food safety, quality and production standards<br>• manufacturing processes, including materials and equipment, involved in preparing delivered milk for further processing<br>• manufacturing processes used to produce specialized dairy products such as whey powders, caseinates, industrial butters and infant formulas<br>• milk handling and its impact on properties for further processing<br>• chemical and physical hazards which may affect milk<br>• procedures for milk storage, handling and preparation<br>• safe work procedures<br>• sanitation and hygiene procedures<br>• HACCP principles and critical limits in a HACCP program<br>• identification of CCPs and critical limits<br>• water and energy use and recycling in processing<br>• regulatory requirements associated with the preparation of milk for processing<br>• environmental impacts of the food processing operation |
| Underpinning Skills | Demonstrate skills to:<br>• implement handling and storage procedures used to prevent spoilage of raw milk<br>• assess the impact of processing on milk<br>• establish CCPs and critical limits for each step in production of milk for processing<br>• carry out milk testing<br>• monitor production of milk for further processing<br>• overview the implementation of the HACCP plan |

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| | • carry out product sampling and testing according to the HACCP plan and operational procedures<br>• provide relevant information to work colleagues to facilitate understanding of, and compliance with, the Ethiopian Standards and associated regulations.<br>• take action to improve own work practice as a result of self-evaluation, feedback from others, or changed work practices, regulations or technology<br>• use technology to access information, prepare reports, and to access and prepare relevant data<br>• implement workplace OHS procedures |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Apply an Understanding of Food Additives** |
| **Unit Code** | **IND DPP4 10 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to recognize the characteristics and functions of food additives, preservatives, colors and flavors used in food products. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify additives used in food | 1.1. Types and ***groupings*** of food additives and common additives used in food products are identified.<br>1.2. Functions of food additives are identified.<br>1.3. Legal requirements, ***policies and procedures*** relating to use of food additives are identified.<br>1.4. Legal and quality consequences of incorrect additive addition are identified. |
| 2. Manage use of additives in a production process | 2.1. Additives used in product range produced in the production process are identified.<br>2.2. Methods of addition are suited to food additive and production requirements.<br>2.3. Procedures are reviewed and/or established for safe handling and addition of food additives.<br>2.4. Handling, use and disposal of additives are conducted in accordance with environmental standards. |

| Variable | Range |
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| Groupings | include but are not limited to:<br>• preservatives<br>• anti-oxidants<br>• acidulants<br>• organoleptic and nutritional modification agents<br>• colors and flavors, including synthetic and natural, oil and water soluble and lakes (dispersion in oil - applying to colors only)<br>• technological aids |
| Policies and procedures | Handling of food additives, preservatives, colors and flavors and related work processes are consistent with company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements and takes account of OHS and environmental impact |

| Evidence Guide | |
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| Critical Aspects of Competence | Must demonstrate knowledge and skills competence to:<br>• identify legal, company and quality standards for food additives |

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| | • identify main additives and groupings<br>• describe the function and user requirements for additives<br>• manage the use of additives to ensure product quality standards are achieved. |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• types of food additives and common additives used in food products<br>• the functions of food additives commonly used in food<br>• coding system used to describe food additives, colors and flavors<br>• legal requirements relating to additives used as established by the Food Standards Code<br>• typical quantities used and related units of measurement<br>• preparation requirements, such as forming and breaking emulsions, and preparation of solutions<br>• addition systems and related equipment requirements<br>• Occupational Health and Safety (OHS)issues related to handling of additives<br>• consequences of incorrect additive addition, including Food Standards Code as it relates to food additives used in a given product range<br>• the quality and food safety hazards of incorrect addition<br>• handling and processing conditions that affect the characteristics of colors and flavors |
| Underpinning Skills | Demonstrates skills to:<br>• identify common food additives and group them by function<br>• identify common types of additives used in the food industry<br>• identify the functions of food additives commonly used in food, such as:<br>➢ texture modifying agents<br>➢ organoleptic and nutritional modifying agents, including flavors, colors, flavor enhancers, sugar-free sweeteners, minerals, vitamins and food acids<br>➢ shelf-life enhancing agents, including preservatives, anti-oxidants and food acids<br>➢ technological aids, including humectants, enzymes,<br>• identify additives, colors and flavors used in product range produced in the workplace, including:<br>➢ coding system used to describe food additives, colors and flavors<br>➢ legal requirements relating to additives used as established by the Food Standards Code<br>➢ function in the food product<br>➢ typical quantities used and related units of measurement<br>➢ preparation requirements, and forming and breaking emulsions, and preparation of solutions where required<br>➢ addition systems and related equipment requirements<br>➢ health and safety issues related to handling of additives |

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| | ➢ process recording requirements<br>➢ consequences of incorrect additive addition, including the Food Standards Code as it relates to food additives used in a given product range<br>• review and/or establish procedures to describe storage, handling and processing conditions that affect the characteristics of colors and flavors, such as:<br>➢ changes in pH<br>➢ temperature change<br>➢ exposure to light<br>➢ exposure to humidity<br>➢ packaging materials<br>• review and/or establish procedures to describe the method of preparation and addition of additives to food products produced in the workplace<br>• provide examples of incorrect addition of food additives that could occur in the production process, determine appropriate corrective action within company policy and level of authority<br>• use communication skills to interpret and complete work information to support operations of work team or area<br>• demonstrate and support cooperative work practices within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Produce Acid-coagulated Soft Cheese** |
| **Unit Code** | **IND DPP4 11 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to produce acid-coagulated soft cheeses to a commercial standard. |

| Elements | Performance Criteria |
|---|---|
| 1. Maintain sanitation in acid-coagulated soft cheese making | 1.1 A high level of sanitation is maintained when transferring starter cultures to the fermentation tanks or cheese vats to prevent contamination with undesirable microorganisms and bacteriophages.<br>1.2 All surfaces are kept clean and sanitized, except for curing boards.<br>1.3 Stringent personal hygiene and quarantine procedures are applied.<br>1.4 ***Multi-phase cleaning systems*** are applied to ensure sanitized surfaces and equipment to ***cleaning standards.***<br>1.5 ***Food safety related information*** is recorded, as required, including milk counts and cheese bacterial counts. |
| 2. Implement procedures to prepare milk for acid-coagulated soft cheese making | 2.1 Raw milk is sampled and composition and counts are measured/analyzed.<br>2.2 ***Clarification procedures*** and standardization procedures for raw milk are carried out.<br>2.3 ***Pasteurization procedures*** are carried out for raw milk.<br>2.4 Raw milk area is maintained separate from pasteurized milk operations. |
| 3. Inoculate the milk to promote coagulation | 3.1 Appropriate Cheese additives and ***ripening agents to be added*** for the ***cheese types*** are availed.<br>3.2 Lactic culture is added to the milk and mixed evenly.<br>3.3 Coagulating enzymes are added to the milk, if required.<br>3.4 Even temperature is maintained at specified level throughout the tank or vat.<br>3.5 A log of pH and temperature is maintained to control ripening and yield. |
| 4. Develop procedures to process curds | 4.1 Curd breaking or cutting is carried out using correct technique and equipment to minimize loss of protein and fat as fines.<br>4.2 Whey fat content is measured and recorded to assess curd breaking or cutting efficiency when making cheese from milk containing fat. |

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| | 4.3 The cooking schedule is planned to ensure optimal syneresis.<br>4.4 Draining procedures are developed to ensure curd is at required moisture, pH level and consistency.<br>4.5 The curd is washed, if required. |
| 5. Manage packaging procedures for acid-coagulated soft cheeses | 5.1 Ripening agents are added to acid-coagulated soft cheeses, if required.<br>5.2 Curing is optimized by planning for and adjusting the key composition ratios of acid-coagulated soft cheeses.<br>5.3 ***Surface treatments*** are used, as required.<br>5.4 ***Packaging*** is applied as appropriate for acid-coagulated soft cheeses.<br>5.5 The product is labeled with complete and accurate information as specified by legislation. |
| 6. Monitor and adjust process control to produce cheese with consistent taste and quality | 6.1 The process objectives of acid-coagulated soft cheese making are established.<br>6.2 The amount of moisture in acid-coagulated soft cheese is controlled by regulating syneresis.<br>6.3 The rate and amount of acid development in the curd is controlled by cooking and washing the curd before salting, if required.<br>6.4 Calcium phosphate levels are adjusted to influence basic cheese structure, if required.<br>6.5 Texture of the cheese is controlled by regulating pH, ripening agents, salt, moisture and fat.<br>6.6 Cheese flavor is controlled through choice of ingredients (milks, cultures, coagulating agents and salt) and pH levels.<br>6.7 Yield is optimized by establishing ***process control parameters to optimize yield*** and ***principles of optimizing yield***. |
| 7. Carry out sensory analysis and grading of soft cheeses | 7.1 A range of flavors in cheese is identified.<br>7.2 Different textures of cheeses are recognized.<br>7.3 Cheese is assessed for evenness of color, finish and ***Key composition ratios of cheese*** are known through appropriate ***cheese test*** methods.<br>7.4 Organoleptic properties of acid-coagulated soft cheese are analyzed to identify possible changes to process control. |

| **Variable** | **Range** |
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| Multi-phase cleaning systems | cleaning with a chlorinated alkaline detergent with a chelator, followed by water and acid rinses. |

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| Cleaning standards | include:<br>• Guide to cleaning and sanitising of plant and equipment in the food industry<br>• Cleaning and sanitising dairy factory equipment<br>• Guide to the cleaning-in-place of dairy factory equipment. |
| Food safety related information | may include:<br>• milk counts<br>• cheese bacterial counts<br>• manufacture and storage details. |
| Clarification procedures for raw milk | may include:<br>• cloth filters<br>• centrifugal clarifiers and separators<br>• bactofugation<br>• membrane (micro) filtration. |
| Pasteurization methods | may be:<br>• batch or continuous. |
| Added ripening agents | may include:<br>• milk enzymes<br>• milk coagulants<br>• lactic cultures<br>• secondary cultures<br>• microorganisms present in the milk and lipases<br>• Lipases may be added by direct addition of enzymes<br>• enzyme cocktails (lipases and proteases)<br>• attenuated proteolytic cultures. |
| Cheese types | include any type of acid-coagulated soft cheeses. Varieties of cheese covered by this classification include:<br>• cottage cheese<br>• cream cheeses and<br>• quark<br>This unit does not cover acid-coagulated soft cheeses made in an industrial process. |
| Surface treatments | may include<br>• ashing<br>• stamping. |
| Packaging | may include:<br>• vacuum and/or gas flush in gas and moisture proof film<br>• plastic rigid containers<br>• oxygen permeable wrap (e.g. greaseproof paper). |
| Process control parameters to optimize yield | include:<br>• curd cutting<br>• heating and cooking<br>• salting too soon after milling<br>• high temperatures during pressing<br>• washing. |
| Principles of optimizing yield | include:<br>• obtain highest MNFS with good quality |

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| | • standardise milk (P/F) to obtain maximum value for milk components<br>• minimise fat and protein losses in the whey. |
| Key composition ratios of cheese | include:<br>• salt to moisture ratio (S/M)<br>• Moisture in the Non Fat Substance (MNFS)<br>• Fat in the Dry Matter (FDM)<br>• pH (acidity). |
| Cheese tests | may include:<br>• testing for pH levels, moisture levels, salt levels and fat and protein levels<br>• microbiological testing<br>• chemical testing<br>• physical testing of cheese throughout production<br>• testing for organoleptic properties. |
| Legislation | are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labelling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity. |
| Policies and procedures | Work is carried out according to:<br>• company procedures<br>• regulatory and licensing requirements<br>• legislative requirements<br>• industrial awards and agreements. |
| Milk standardization requirements | may:<br>• include standardisation of microflora, fat and protein, and casein/fat rations<br>• require the addition of skim milk or skim milk solids, or the separation of cream. |
| Records of cheese manufacture | may include:<br>• timing of operations<br>• temperature logging<br>• milk and curd pH profile<br>• curd weight<br>• milk composition<br>• cheese microbial counts<br>• hooped yield<br>• curing and grading data. |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Critical aspects of assessment must include evidence of the ability to produce acid-coagulated soft cheese to a commercial standard, including:<br>• developing quality procedures for: |

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| | ➢ sanitation, food safety, quality assurance and environmental management in acid-coagulated soft cheese production<br>• developing work instructions for:<br>➢ preparing milk for cheese making<br>➢ coagulating milk through inoculation<br>➢ controlling ripening of soft cheeses in the vat<br>➢ managing acid-coagulated soft cheese making processes<br>➢ packaging and labeling acid-coagulated soft cheeses<br>➢ carrying out sensory analysis of acid-coagulated soft cheeses<br>➢ reviewing process control based on sensory analysis and results of testing |
| Underpinning Knowledge and Attitudes | • the main cheese types and the common processes for making different types of cheeses<br>• the main components of milk and cheese (both curds and whey)<br>• types and impact of inhibitory substances in milk, including bacteriophage<br>• purpose and basic principles of cheese making<br>• specifications of product at each stage of cheese making<br>• milk characteristics and components important in cheese making<br>• milk preparation for cheese making (standardisation, pasteurisation and homogenisation, if required)<br>• types of starters and adjuncts used and their role in the fermentation process<br>• effect of milk characteristics on cheese processing performance<br>• moisture control in cheese making<br>• processes of coagulation and syneresis and their role in cheese making<br>• curd size and its impact on moisture<br>• effects of pH and temperature on cheese processing performance and product quality<br>• microbial contaminants of cheese (lipolytic bacteria, yeasts, moulds, bacillus, listeria, E. Coli, salmonella, coliforms and staphylococci) and their impact on cheese quality<br>• sampling and testing procedures for microbes<br>• yeasts and moulds and other microorganisms of significance in cheese making<br>• temperature and humidity of curing<br>• ripening agents for different cheese types<br>• contamination/food safety risks associated with the process and related control measures<br>• techniques used to monitor the cheese making process, such as inspecting, measuring and testing, as required by the process. |

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| | • common causes of variation and corrective action required for each cheese making process<br>• organoleptic properties and their relationship to processes and ingredients in cheese making<br>• sampling procedures for cheese making<br>• contamination risk of inoculants and contaminants<br>• food safety and quality assurance standards and procedures<br>• cleaning and sanitation procedures in line with standards for cleaning in the dairy industry<br>• routine maintenance procedures<br>• product/batch changeover procedures<br>• OHS hazards and controls<br>• procedures for recording production and performance information<br>• environmental issues and controls relevant to the process, including waste collection and handling procedures related to the process |
| Underpinning Skills | • measure and mix acid coagulants and additives<br>• inoculate milk and control ripening in the vat<br>• promote syneresis to the required firmness and composition of curd<br>• separate whey from curd and press, if applicable, and salt curd<br>• monitor storage and ripening, if applicable, conditions for acid-coagulated soft cheese<br>• add ripening agents (lipases) and surface treatments to acid-coagulated soft cheeses<br>• maintain records for cheese making<br>• carry out packaging of cheese<br>• maintain hygiene and sanitation procedures in line with best manufacturing practice<br>• use multi-phase cleaning systems<br>• develop safe work practices and personal hygiene and sanitation procedures<br>• maintain the viability and integrity of coagulating agents<br>• calculate cheese yields<br>• develop packaging and labeling for acid-coagulated soft cheeses comply with environmental requirements for a processing operation |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Produce a Range of Rennet-Coagulated Cheeses** |
| **Unit Code** | **IND DPP4 12 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to produce a range of rennet-coagulated cheeses to a commercial standard. |

| Elements | Performance Criteria |
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| 1. Manage sanitation in cheese making | 1.1 Container of starter culture is sanitized or pre-ripened under aseptic conditions before tipping the contents into the vat to reduce the risk of infection or contamination.<br>1.2 All surfaces are kept clean and sanitized, except for curing boards.<br>1.3 Stringent personal hygiene and quarantine procedures are applied as part of best manufacturing practice.<br>1.4 ***Multi-phase cleaning systems*** are applied to ensure sanitized surfaces and equipment to ***cleaning standards***.<br>1.5 ***Food safety related information*** is recorded, as required, including milk counts and cheese bacterial counts. |
| 2. Develop and implement procedures to prepare milk for cheese making | 2.1 Raw milk is sampled and composition and counts measured/analyzed.<br>2.2 ***Clarification procedures*** and standardization procedures for raw milk are implemented.<br>2.3 ***Pasteurization procedures*** for milk are carried out.<br>2.4 Raw milk area is maintained separate from pasteurized milk operations. |
| 3. Mix ingredients in the vat for rennet-coagulated cheeses | 3.1 Appropriate ***cheese additives*** to be used for the ***cheese type*** are availed.<br>3.2 Color is added to the milk to change the color of the cheese, if required.<br>3.3 Mould spores are added for mould ripened cheeses, if required.<br>3.4 ***Cheese adjunct*** cultures are added to influence the texture and flavor of the ripened cheese, if required.<br>3.5 Enzymes are added to alter the flavor profile of the ripened cheese, if required.<br>3.5 The milk is acidified with organic or inorganic acids before renneting, if required (e.g. direct acidified Mozzarella or Bocconcini).<br>3.6 The milk is partly acidified with acid prior to adding culture to control the calcium phosphate level in the curd during cheese making, if required. |

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| | 3.7 ***Cheese inoculant*** cultures and ***rennet*** are added to milk and held at required temperature.<br>3.8 A log of pH and temperature is maintained. |
| 4. Cut and handle the curd for rennet-coagulated cheeses | 4.1 Curd cutting is supervised to achieve optimal yield and the required moisture level in the cheese.<br>4.2 Agitation and temperature of the curd and whey is monitored.<br>4.3 The curd and whey is heated, if required, and checked for uneven or overheating, if heated.<br>4.4 The heating schedule is planned to ensure optimal syneresis.<br>4.5 Part of the whey is removed and replaced with water to wash lactose and lactic acid from the curd, if required.<br>4.6 For large and small eye cheeses (e.g. large eye type-Swiss and small eye type-Gouda) the curd is matted under the whey before the whey is removed to ensure proper eye development.<br>4.7 All or part of the whey is removed from the curds by draining it out of the vat. |
| 5. Develop and implement salting, curing and packaging procedures | 5.1 Procedures are implemented during ***preparation of the curd*** for salting.<br>5.2 Salting treatments are applied to ensure salt profile effects are minimized in the finished product.<br>5.3 Dry salted stirred or milled curd particles are placed into moulds for pressing, if required.<br>5.4 ***Ripening procedures*** are carried out and the process is monitored.<br>5.5 ***Packaging*** is developed and applied for each cheese type. |
| 6. Monitor and adjust process control to produce cheese with consistent taste and quality | 6.1 The process objectives of rennet-coagulated cheese making are established.<br>6.2 Moisture control is achieved in the cheeses by the use of ***processing factors to achieve moisture control***.<br>6.3 The rate and the amount of acid development are controlled.<br>6.4 Calcium phosphate levels are controlled to influence basic cheese structure.<br>6.5 Texture of the cheese is controlled by regulating pH, ripening agents, salt, moisture and fat.<br>6.6 Cheese flavor is controlled through choice of ingredients (milks, cultures, coagulating agents and salt) and pH levels.<br>6.7 ***Process control parameters*** and ***principles of optimizing yield*** are used to achieve optimal yield. |

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| | 6.8 ***Aging*** of rennet-coagulated cheeses is applied to develop optimal flavor and texture. |
| 7. Carry out sensory analysis and grading of rennet-coagulated cheeses | 7.1 A range of flavors in cheese are identified.<br>7.2 Different textures of cheeses are recognized.<br>7.3 Cheese is assessed for evenness of color, finish and ***key composition ratios of cheese*** are known through appropriate cheese test methods.<br>7.4 Organoleptic properties of rennet-coagulated cheeses are analyzed to identify possible changes to process controls. |
| 8. Meet workplace requirements for food safety, quality and environmental management | 8.1 Food safety related information is recorded.<br>8.2 Records of cheese manufacture are maintained.<br>8.3 Health and safety and environmental protection procedures are developed through a risk management approach.<br>8.4 Waste is disposed of and environmental impacts reviewed for the cheese making operation.<br>8.5 Legislation requirements are reflected in procedures and specifications, activities are performed according to Policies and procedures. |

| **Variable** | **Range** |
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| Milk standardization requirements | may:<br>• include standardisation of micro flora, fat and protein, and casein/fat rations<br>• require the addition of skim milk or skim milk solids, or the separation of cream. |
| Cleaning standards | include:<br>• Guide to cleaning and sanitising of plant and equipment in the food industry<br>• Cleaning and sanitising dairy factory equipment<br>• Guide to the cleaning-in-place of dairy factory equipment. |
| Food safety related information | may include:<br>• milk counts<br>• cheese bacterial counts<br>• manufacture and storage details. |
| Clarification procedures for raw milk | may include:<br>• cloth filters<br>• centrifugal clarifiers and separators<br>• bactofugation<br>• membrane (micro) filtration. |
| Pasteurization methods | may be:<br>• batch or continuous. |

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| Cheese additives | may be added to the milk after inoculation and include:<br>• calcium chloride<br>• nitrates<br>• colour (e.g. Annatto is added to Cheddar style cheeses to make a more orange colour)<br>• lipases<br>• adjunct cultures (e.g. Propionibacteria added to milk for Swiss type cheeses results in the large eyes and characteristic flavour of these cheeses)<br>• enzymes (e.g. the use of lipase in some Parmesan and Romano style cheeses). |
| Cheese types | may include the range of rennet-coagulated cheeses including:<br>• low heating temperature (<40°C) hard cheeses (e.g. Cheddar)<br>• high temperature (>40°C) hard cheeses (e.g. Parmesan and Romano)<br>• eye cheeses<br>• mould ripened cheeses (e.g. Camembert and Blue)<br>• bacterial surface ripened cheeses (e.g. Swiss Tilsit)<br>• feta<br>• past filata cheeses (e.g. Mozzarella). |
| Cheese adjuncts | are microbial populations added to cheese in addition to the normal inoculants to:<br>• provide consistency to flavour and texture<br>• accelerate flavour development<br>• produce specific attributes to meet market targets<br>Adjunct cultures are essential for the correct ripening of the cheese. |
| Cheese inoculants | include the lactic acid bacteria which are added to the milk as a culture in inoculation. |
| Rennet | may include:<br>• enzymes (mostly chymosin) from animal stomachs<br>• chymosin fermented by genetically modified organisms<br>• enzymes from microbial or plant sources. |
| Legislation | are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labelling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity. |
| Policies and procedures | Work is carried out according to:<br>• company procedures<br>• regulatory and licensing requirements<br>• legislative requirements<br>• industrial awards and agreements. |
| Cheese tests | may include:<br>• testing for pH levels, moisture levels, salt levels and fat and protein levels |

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| | • microbiological testing<br>• chemical testing<br>• physical testing of cheese throughout production<br>• testing for organoleptic properties. |
| Preparation of the curd | • For Cheddar and pasta filata cheeses, the curd particles may be allowed to matt before cutting and stacking as loaves, or stirred to prevent the particles from matting before the addition of dry salt. The loaves of matted curd are milled into small pieces before salting. The milled or stirred curd particles may be washed before salting<br>• For pasta filata cheeses, salted, part salted or unsalted curd is heated to ~60°C to plasticise the curd (typically by stretching in hot water or brine). The plasticised cheese is then moulded into its desired shape and the part salted or unsalted cheeses salted further in a brine solution<br>• For opened textured cheeses (e.g. Feta, Parmesan, Havarti, and most blue mould ripened cheeses) well drained curd is generally transferred from the vat into moulds before optional pressing<br>• Eye and open textured cheese types are generally pressed before salting<br>• For surface ripened soft cheeses (mould and/or bacteria), curd and part of the whey is transferred into moulds to form the shape of the cheese before salting. |
| Ripening procedures | include:<br>• for most hard cheeses:<br>➢ the cheese may be sealed and allowed to ripen under either temperature controlled conditions (for rindless cheeses) or allowed to ripen under temperature and humidity controlled conditions before the cheese is sealed (for rinded cheeses)<br>• for white or blue mould ripened cheeses, soft bacterial surface ripened cheeses (e.g. Limburger) and hard bacterial surface ripened cheeses(e.g. Swiss Tilsit):<br>➢ the cheeses are allowed to ripen under temperature and humidity controlled conditions before the cheese is generally packaged in aerobic packaging. Some blue mould cheese and bacterial surface ripened cheese styles may be sealed at some stage during ripening<br>• feta cheeses are generally ripened in a salt brine. |
| Packaging | may include:<br>• vacuum and/or gas flush in gas and moisture proof film<br>• surface drying as a protective rind followed by waxing<br>• oxygen permeable packaging for most mould and bacterial surface ripened cheese types. |
| Processing factors to achieve moisture control | to achieve moisture control include:<br>• cheese making time<br>• curd particle size and cooking temperature. |

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| Process control parameters to optimise yield | to optimize yield include:<br>• curd cutting and subsequent agitation<br>• heating and cooking<br>• high temperatures during pressing. |
| Principles of optimizing yield | include:<br>• obtain highest MNFS with good quality<br>• standardise milk (P/F) to obtain maximum value for milk components<br>• minimise fat and protein losses in the whey. |
| Key composition ratios of cheese | include:<br>• salt to moisture ratio (S/M)<br>• moisture in the non fat substance (MNFS)<br>• fat in the dry matter (FDM)<br>• pH (acidity). |
| Aging of hard cheeses | may be:<br>• from one to two months to several years<br>• temperature must be monitored for rindless cheeses and temperature and humidity for rind, mould ripened and bacterial surface ripened cheeses. |
| Multi-phase cleaning systems | require:<br>• cleaning with a chlorinated alkaline detergent with a chelator, followed by water and acid rinses. |
| Records of cheese manufacture | may include:<br>• timing of operations<br>• temperature logging<br>• milk and curd pH profile<br>• curd weight<br>• milk composition<br>• cheese microbial counts<br>• hooped yield<br>• curing and grading data. |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Establishing procedures for:<br>• sanitation, food safety, quality assurance and environmental management in rennet-coagulated cheese production<br>• developing work instructions for:<br>• preparing milk for cheese making<br>• coagulating milk through renneting<br>• ensuring a suitable rate of fermentation<br>• carrying out manufacture and curing processes to optimal levels<br>• packaging and labeling rennet-coagulated cheeses<br>• carrying out sensory analysis of rennet-coagulated cheeses<br>• reviewing process control based on sensory analysis and recovered yield. |

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| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• the main cheese types and the common processes for making different types of rennet-coagulated cheeses<br>• the main components of milk and cheese (both curds and whey)<br>• types and impact of inhibitory substances in milk, including bacteriophage<br>• purpose and basic principles of cheese making<br>• specifications of product at each stage of rennet-coagulated cheese making<br>• milk characteristics and components important in cheese making<br>• milk preparation for cheese making (standardization and pasteurization)<br>• types of starters used and their role in the fermentation process<br>• types of adjunct cultures and their role in the flavor and texture characteristics of the ripened cheese<br>• use of additives to the milk for modifying the flavor, texture and color of the ripened cheese<br>• effect of milk characteristics on cheese processing performance<br>• use of bacterial cultures and coagulating enzymes<br>• moisture control in cheese making<br>• processes of coagulation and syneresis and their role in rennet-coagulated cheese making<br>• critical control points in the manufacture of each cheese type<br>• principles of brine salting and maintenance of brine salting systems for brine salted cheeses<br>• principles of dry salting for dry salted cheeses<br>• effects of pH and temperature on cheese processing performance and product quality<br>• lactic acid bacteria and their role in cheese making<br>• microbial contaminants of cheese (lipolytic bacteria, yeasts, moulds, bacillus, listeria, E. coli, salmonella, coliforms and staphylococci) and their impact on cheese quality<br>• sampling and testing procedures for microbes<br>• yeasts and moulds and other microorganisms of significance in cheese making<br>• contamination/food safety risks associated with the process and related control measures<br>• techniques used to monitor the cheese making process, such as inspecting, measuring and testing<br>• common causes of variation and corrective action required for each cheese making process<br>• organoleptic properties and their relationship to process control and ingredients in cheese making |

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| | • sampling procedures<br>• contamination risk of inoculants and contaminants<br>• food safety and quality assurance standards and procedures<br>• yield efficiency<br>• cleaning and sanitation procedures in line with Ethiopian standards for cleaning in the dairy industry<br>• routine maintenance procedures<br>• product/batch changeover procedures<br>• OHS hazards and controls<br>• procedures for recording production and performance information<br>• environmental issues and controls relevant to the process, including waste collection and handling procedures. |
| Underpinning Skills | Demonstrates skills to:<br>• sample fresh milk and analyze results<br>• prepare milk for cheese making<br>• carry out standardization and pasteurization procedures<br>• adjust milk to renneting temperature and monitor temperature<br>• add optional additives to influence flavor, color and texture during ripening<br>• add starter for acidification by lactic acid or acid for direct or part acidified milk for cheese making<br>• add rennet to promote coagulation<br>• test readiness of curd for cutting<br>• use stainless steel wire or nylon line knives to cut the curd into small particles<br>• carry out agitation and optional cooking procedure<br>• carry out cheese washing procedures<br>• carry out drainage operation<br>• carry out further curd treatment, depending on the cheese type<br>• carry out salting process<br>• manage process control for moisture, pH, calcium phosphate levels, microbiology, texture and flavor in rennet-coagulated cheese making<br>• carry out sampling for chemical and microbiological testing of cheese<br>• manage ripening process for rind cheeses, mould ripened cheeses and bacterial surface ripened cheeses for optimum quality<br>• assess rennet-coagulated cheeses for organoleptic qualities<br>• conduct tests for pH, moisture and salt levels in cheese<br>• maintain records for cheese making<br>• carry out packaging of cheese<br>• use multi-phase cleaning systems<br>• develop safe work practices and personal hygiene and sanitation procedures |

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| | • maintain the viability and integrity of coagulating agents and microbial additives<br>• calculate cheese yields<br>• develop packaging and labeling for rennet-coagulated cheeses<br>• comply with environmental requirements for a processing operation |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Produce Acid - Heat Coagulated Cheese** |
| **Unit Code** | **IND DPP4 13 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to produce a range of acid/heat-coagulated cheeses to a commercial standard. |

| Elements | Performance Criteria |
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| 1. Maintain sanitation in making acid/heat-coagulated cheese | 1.1 All surfaces are kept clean and sanitized, except for curing boards.<br>1.2 Stringent personal hygiene and quarantine procedures are applied.<br>1.3 ***Multi-phase cleaning systems*** are applied to ensure sanitized surfaces and equipment.<br>1.4 ***Food safety related information*** is recorded, as required, including milk counts and cheese bacterial counts. |
| 2. Implement procedures to prepare whey, milk/whey blends or cream for artisan acid/heat-coagulated cheese making | 2.1 Raw milk or cream is sampled and composition and counts are measured/ analyzed.<br>2.2 ***Clarification procedures*** and standardization procedures are carried out for raw milk or cream.<br>2.3 Fresh whey is heated to prevent further acidification if required.<br>2.4 Raw milk or cream area is maintained separate from other operational areas. |
| 3. Promote coagulation of both curds and whey | 3.1 The temperature of dairy liquid is raised to that required.<br>3.2 The hot liquid is acidified to coagulate both casein and whey proteins.<br>3.3 The curd is held in the curd/whey mixture after coagulation.<br>3.4 A log of pH and temperature is maintained to monitor yield.<br>3.5 Draining is carried out. |
| 4. Manage cooking and packaging procedures for acid/heat-coagulated cheeses | 4.1 The cooking schedule is planned to ensure optimal coagulation of proteins.<br>4.2 Draining procedures are developed to ensure cheese is at required consistency.<br>4.3 Salting treatments are applied to ensure salt profile effects are minimized in the finished product.<br>4.4 Cheeses are cooled before packing, if required.<br>4.5 Aseptic conditions are maintained during cooling to minimize contamination with microbial contaminants. |

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| | 4.6 ***Packaging*** appropriate for acid/heat-coagulated cooked cheeses is applied.<br>4.7 The product is labeled with complete and accurate information as specified by ***legislation***. |
| 5. Monitor and adjust process control to produce cheese with consistent taste and quality | 5.1 The process objectives of acid/heat-coagulated cooked cheese making are established for the ***cheese type***.<br>5.2 Texture of the cheese is controlled by regulating pH and fat.<br>5.3 Cheese flavor is controlled through choice of ingredients (whey, milk, cream, acidulant and salt).<br>5.4 Yield is optimized through ***principles of optimizing yield*** and establishing ***process control parameters***. |
| 6. Carry out sensory and compositional analysis and grading of acid/heat-coagulated cheeses | 6.1 The characteristic flavors and flavor defects in cheese are identified.<br>6.2 Different textures of cheeses are recognized.<br>6.3 Cheese is assessed for evenness of color, finish and ***key composition of cheese*** are analyzed through appropriate ***cheese test*** methods.<br>6.4 Organoleptic properties of acid/heat-coagulated cooked cheese are analyzed to identify possible changes to process controls. |
| 7. Meet workplace requirements for food safety, quality and environmental management | 7.1 Food safety related information is recorded.<br>7.2 ***Records of cheese manufacture*** are maintained.<br>7.3 Health and safety and environmental protection procedures are developed through a risk management approach.<br>7.4 Waste is disposed of and environmental impacts of the cheese making operation are reviewed.<br>7.5 Activities are performed according to policies and procedures. |

| **Variable** | **Range** |
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| Multi-phase cleaning systems | require:<br>• cleaning with a chlorinated alkaline detergent with a chelator, followed by water and acid rinses. |
| Food safety related information | may include:<br>• milk counts<br>• cheese bacterial counts<br>• manufacture and storage details. |
| Clarification procedures for raw milk | may include:<br>• cloth filters<br>• centrifugal clarifiers and separators<br>• bactofugation<br>• membrane (micro) filtration |

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| Packaging | may include:<br>• vacuum and/or gas flush in gas and moisture proof film<br>• plastic rigid containers<br>• oxygen permeable wrap (e.g. greaseproof paper). |
| Legislation | Are typically reflected in procedures and specifications.<br>Legislation relevant to this industry includes:<br>• the Food Standards Code, including labeling, weights and measures legislation<br>• legislation covering food safety, environmental management, OHS, |
| Cheese types | may include:<br>• any type of heat/acid precipitated (acid/heat-coagulated) cheeses (e.g. Ricotta (Italy) and Channa (India). |
| Policies and procedures | Work is carried out according to:<br>• company procedures<br>• regulatory and licensing requirements<br>• legislative requirements<br>• industrial awards and agreements |
| Cheese tests | may include:<br>• testing for pH levels, moisture levels, salt levels, fat and protein levels<br>• microbiological testing<br>• chemical testing<br>• physical testing of cheese throughout production<br>• testing for organoleptic properties. |
| Principles of optimizing yield | include:<br>• standardise milk (P/F) to obtain maximum value for milk components<br>• minimise fat and protein losses in the whey. |
| Process control parameters to optimize yield | to optimize yield include:<br>• milk temperature<br>• pH of hot curd-whey mixture<br>• recovery of protein and draining. |
| Key composition of cheese | includes:<br>• salt<br>• moisture<br>• fat<br>• pH (acidity). |
| Records of cheese manufacture | may include:<br>• timing of operations<br>• temperature logging<br>• milk and curd pH profile<br>• recovery of curd-whey<br>• milk composition<br>• cheese microbial counts<br>• hooped yield<br>• curing and grading data. |

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| Milk standardization requirements | may:<br>• include standardisation of fat and protein, and casein/fat rations<br>• require the addition of whey, skim milk or skim milk solids, or the separation of cream. |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Critical aspects of assessment must include evidence of the ability to produce acid/heat-coagulated cheeses to a commercial standard, including:<br>• establishing procedures for:<br>➢ sanitation, food safety, quality assurance and environmental management in acid/heat-coagulated cheese production<br>• developing and implementing work instructions to:<br>➢ prepare dairy liquids for cheese making<br>➢ coagulate dairy liquid through adding acid to heated milk<br>➢ carry out cooking processes<br>➢ package and label acid/heat-coagulated cheeses<br>➢ carry out sensory analysis of acid/heat-coagulated cheeses<br>➢ review process control based on sensory |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• the main components of milk, whey and cream for making acid/heat-coagulated cheese<br>• specifications of product at each stage of cheese making<br>• standardization of dairy liquids for acid/heat-coagulated cheese<br>• types of acid used for coagulation<br>• microbial contaminants of cheese (lipolytic bacteria, yeasts, moulds, bacillus, listeria, E. coli, salmonella, coliforms and staphylococci) and their impact on cheese quality<br>• sampling and testing procedures for microbes<br>• yeasts and moulds and other microorganisms of significance in cheese making<br>• contamination/food safety risks associated with the process and related control measures<br>• techniques used to monitor the cheese making process, such as inspecting, measuring and testing, as required by the process<br>• common causes of variation and corrective action required for each cheese making process<br>• organoleptic properties and their relationship to processes and ingredients in cheese making<br>• sampling procedures<br>• contamination risk of inoculants and contaminants<br>• food safety and quality assurance standards and procedures<br>• cleaning and sanitation procedures and Ethiopian standards |

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| | • routine maintenance procedures<br>• product/batch changeover procedures<br>• OHS hazards and controls<br>• hygiene procedures including washing and decontamination<br>• Food Standards Code<br>• procedures for recording production and performance information<br>• environmental issues and controls relevant to the process, including waste collection and handling procedures related to the process. |
| Underpinning Skills | Demonstrates skills to:<br>• acidify a heated milk mixture to promote coagulation<br>• carry out drainage operations<br>• recover curd in the cheese<br>• monitor storage and ripening, if applicable, conditions for acid/heat-coagulated cheese<br>• conduct tests for pH, moisture, fat and salt levels in cheese<br>• maintain records for cheese making<br>• use multi-phase cleaning systems<br>• develop safe work practices and personal hygiene and sanitation procedures<br>• maintain the integrity of acidifying agents<br>• maintain hygiene in line with Ethiopian standards for cleaning dairy equipment<br>• calculate cheese yields<br>• develop packaging and labelling for acid/heat-coagulated cooked cheeses comply with environmental requirements for a processing operation |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Implement and Review the Production of Concentrated and Dried Dairy Products** |
| **Unit Code** | **IND DPP4 14 0613** |
| **Unit Descriptor** | This unit covers the skills and knowledge required to implement and review production standards and procedures for concentrated and dried dairy products. |

| Elements | Performance Criteria |
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| 1. Prepare for the manufacture of concentrated and/or dried milk and related products | 1.1 The statutory compositional requirements for the different types of ***concentrated dairy products*** and related products are established.<br>1.2 The required formulation of concentrated and/or dried milk and related products is selected.<br>1.3 The appropriate production system and the preferred sequence of activity to prepare the system for operation are selected.<br>1.4 ***Materials and equipment*** are prepared and safe operating procedures accessed for operation. |
| 2. Monitor the manufacture of concentrated and/or dried milk and related products to ensure quality standards are met | 2.1 A production schedule is implemented to ensure all resources and requirements are available and meet company requirements.<br>2.2 Production system is set to operating specifications before and during production.<br>2.3 Data requirements appropriate for food safety, quality and production standards are interpreted.<br>2.4 Data collection points consistent with equipment capabilities and data requirements are established.<br>2.5 Procedures to deal with non-conformance in relation to process and the final product are interpreted or developed.<br>2.6 Concentration and drying procedures are implemented and monitored.<br>2.7 Process controls are implemented and supervised for the preparation and manufacture of concentrated and/or dried milk and related products. |
| 3. Diagnose, rectify and/or report problem arising from the preparation and manufacture of concentrated and/or dried milk and related products | 3.1 Sensory evaluation and product testing protocols used to identify defects are established.<br>3.2 A system used to identify defects in the preparation and manufacture of concentrated and/or dried milk and related products is applied.<br>3.3 Adjustments are implemented to process and equipment, as identified.<br>3.4 Problems are reported to designated person according to company policies and procedures. |

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| 4. Review production processes | 4.1 The Critical Control Points (CCPs) and critical limits for product safety are reviewed.<br>4.2 A sampling plan is developed and implemented for concentrated and dried dairy products.<br>4.3 Sensory analysis is conducted and analyzed.<br>4.4 Food tests are undertaken.<br>4.5 ***Policies and procedures***, ***legislations*** and ***OHS requirements*** are reviewed for food safety and quality.<br>4.6 Safe work systems for processing of concentrated and dried dairy products are reviewed.<br>4.7 Environmental impacts and energy efficiencies are reviewed for processing of concentrated and dried dairy products. |

| **Variable** | **Range** |
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| Concentrated dairy products | Include condensed milks, sweetened condensed milks, evaporated skim or whole milk, condensed buttermilk and condensed whey. |
| Dried dairy products | Include milk powders, whey powders and whey protein concentrates. |
| Materials and equipment | May include dairy/dairy product processing chemicals, dairy/dairy products processing equipment. |
| Policies and procedures | Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements. |
| Legislation | are typically reflected in procedures and specifications. Legislation relevant to this industry includes the Food Standards Code including labeling, weights and measures legislation; and legislation covering food safety, environmental management, occupational health and safety, anti-discrimination and equal opportunity. |
| OHS requirements | • legislation, regulations, Codes of practice<br>• Safety Data Sheets (SDSs)<br>• enterprise and process specific occupational health and safety requirements |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Must demonstrate knowledge and skills competence to implement manufacturing of concentrated and dairy products including:<br>• implementing process control procedures and data collection;<br>• diagnosing and reporting problems for manufacturing;<br>• carrying out sensory evaluation and product testing; and<br>• reviewing the concentrated and/or dried milk and related products production system for food safety and quality and environmental impact. |

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| Underpinning Knowledge and Attitudes | Demonstrate Knowledge of:<br>• different types and formulation of concentrated and/or dried milk and related products<br>• production systems used for the preparation and manufacture of concentrated and/or dried milk and related products<br>• the output of each of the processes used in the preparation and manufacture of concentrated and/or dried milk and related products<br>• the major ingredients found in concentrated and/or dried milk and related products<br>• the interrelationships between suppliers of products and internal/external customers<br>• preparation and manufacture of concentrated and/or dried milk and related products including mix standardization/ calculation, mixing /blending, homogenization, heat treatment, packaging, and storage and distribution<br>• the production system for the preparation and manufacture of concentrated and/or dried milk and related products including production instruction, quality assurance requirements and or/specifications, production specification and or/standards, production equipment, production procedures, cleaning procedures and materials and raw materials<br>• critical factors in the preparation and manufacture of concentrated and/or dried milk and related products<br>• potential product defects and their causes, which may arise in the preparation and manufacture of concentrated and/or dried milk and related dairy products<br>• specific domestic and export market specifications for concentrated and/or dried milk and related products<br>• quality and continuous improvement processes<br>• sensory analysis techniques<br>• chemical and physical hazards which may affect milk based products<br>• sampling and testing techniques and analysis of data<br>• procedures for milk product storage, handling and preparation<br>• safe work procedures<br>• sanitation and hygiene procedures<br>• HACCP principles and critical limits in a HACCP program<br>• identification of Critical Control Points (CCPs) and critical limits<br>• water and energy use and recycling in processing<br>• regulatory requirements associated with concentrated and dried dairy products<br>• environmental impacts of the food processing operation<br>• safe systems of work |
| Underpinning Skills | Demonstrate skills to:<br>• select the formulation of concentrated and dried dairy products |

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| | • interpret a production schedule to ensure all resources and requirements are available and meet company requirements<br>• set the production system to operating specifications before and during production<br>• implement and supervise the production system for the preparation and manufacture of concentrated and dried dairy products<br>• identify the potential product defects and non conformances and their causes which may arise in the preparation and manufacture of concentrated and dried dairy products<br>• implement adjustments to process/equipment in response to system review<br>• report problems to designated person according to company policies and procedures<br>• overview the implementation of the HACCP plan<br>• carry out product sampling and testing according to the HACCP plan and operational procedures<br>• provide relevant information to work colleagues to facilitate understanding of, and compliance with, the Ethiopian Standards and associated regulations<br>• take action to improve own work practice as a result of self-evaluation, feedback from others, or changed work practices, regulations or technology<br>• use technology to access information, prepare reports, and to access and prepare relevant data<br>• implement workplace OHS procedures |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Implement and Review the Production of Ice Creams and Frozen Dairy Products** |
| **Unit Code** | **IND DPP4 15 0613** |
| **Unit Descriptor** | This unit covers the skills and knowledge required to implement and review production standards and procedures for ice creams and frozen dairy products. |

| Elements | Performance Criteria |
|---|---|
| 1. Prepare for the manufacture of ice creams and frozen dairy products | 1.1 The statutory compositional requirements for the different types of ***ice creams and frozen dairy products*** are established.<br>1.2 The required formulation of ice creams and frozen dairy products is selected.<br>1.3 The appropriate production system and the preferred sequence of activity to prepare the system for operation are selected.<br>1.4 Equipment is prepared and safe operating procedures accessed for its operation. |
| 2. Monitor the preparation and manufacture of ice creams and frozen dairy products to ensure quality standards are met | 2.1 Resource requirements, ***materials and equipment*** for the preparation and manufacture of ice creams and frozen dairy products are identified and sourced.<br>2.2 A production schedule is implemented to ensure all resources and requirements are available and meet company requirements.<br>2.3 Production system is set to operating specifications before and during production.<br>2.4 Chilling and refrigeration procedures are tested.<br>2.5 Data requirements appropriate for food safety, quality and production standards are determined.<br>2.6 Data collection points consistent with equipment capabilities and data requirements are established.<br>2.7 Procedures are developed to deal with non-conformance in relation to process and the final product.<br>2.8 Process controls are implemented and supervised for the preparation and manufacture of ice creams and frozen dairy products. |
| 3. Diagnose, rectify and/or report problem arising from the preparation and manufacture of ice creams and dairy products | 3.1 Potential product defects and their causes, which may arise in the preparation and manufacture of ice creams and frozen dairy products, are identified.<br>3.2 Sensory evaluation and product testing protocols used to identify defects are established.<br>3.3 A system to identify defects in the preparation and manufacture of ice creams and frozen dairy products is implemented. |

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| | 3.4 A sampling plan is developed and implemented for ice creams and frozen dairy products.<br>3.5 Sensory analysis is conducted and analyzed.<br>3.6 Food tests are undertaken.<br>3.7 Adjustments are made to process & equipment, as identified.<br>3.8 Problems are recorded and reported to designated person according to company policies and procedures. |
| 4. Review production processes | 4.1 The Critical Control Points (CCPs) and critical limits for product safety are reviewed.<br>4.2 ***Policies and procedures***, ***legislations*** and ***OHS requirements*** are reviewed for food safety and quality.<br>4.3 Safe work systems for processing of ice creams and frozen dairy products are reviewed.<br>4.4 Environmental impacts and energy efficiencies are reviewed for processing of ice creams and frozen dairy products. |

| **Variable** | **Range** |
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| Ice creams and frozen dairy products | Include frozen milks, custards, yoghurts and gelatos. |
| Materials and equipment | May include dairy/dairy product processing chemicals, dairy/dairy products processing equipment. |
| Policies and procedures | Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements. |
| Legislation | requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes the Food Standards Code including labeling, weights and measures legislation; and legislation covering food safety, environmental management, occupational health and safety, anti-discrimination and equal opportunity. |
| OHS requirements | • legislation, regulations, Codes of practice<br>• Safety Data Sheets (SDSs)<br>• enterprise and process specific occupational health and safety requirements. |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Must demonstrate knowledge and skills competence to implement manufacturing processes for ice creams and frozen dairy desserts including:<br>• implementing process control procedures and data collection; diagnosing and reporting problems in manufacturing;<br>• carrying out sensory evaluation and product testing of ice creams and frozen dairy products; and<br>• reviewing the production system for food safety and quality and environmental impact. |

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| Underpinning Knowledge and Attitudes | Demonstrate Knowledge of:<br>• types of ice creams and frozen dairy products<br>• the role of the major ingredients found in ice creams and frozen dairy products<br>• the production system for the preparation and manufacture of ice creams and frozen dairy products including production instruction, quality assurance requirements and or/specifications, production specification and or/standards, production equipment, production procedures, cleaning procedures and materials and raw materials<br>• the output of each of the processes used in the preparation and manufacture of ice creams and frozen dairy products<br>• the principles of operation of equipment and accessories used in the preparation and manufacture of ice creams and frozen dairy products<br>• the interrelationships between suppliers of products and internal/external customers<br>• specific domestic and export market specifications for ice creams and frozen dairy products<br>• different types and formulation of ice creams and frozen dairy products<br>• pre-treatment, cooking and incorporation of confectionary, flavorings and fruits<br>• critical factors in the preparation and manufacture of ice creams and frozen dairy products<br>• identification of defects during production and of final products<br>• testing procedures for raw materials through to manufactured product<br>• packaging procedures<br>• quality and continuous improvement processes<br>• sensory analysis techniques<br>• chemical and physical hazards which may affect ice creams and frozen dairy products<br>• storage, handling and preparation procedures for ice creams and frozen dairy products<br>• safe work procedures<br>• sanitation and hygiene procedures<br>• HACCP principles and critical limits in a HACCP program<br>• identification of Critical Control Points (CCPs) and critical limits<br>• water and energy use and recycling in processing<br>• regulatory requirements associated with ice creams and frozen dairy products<br>• environmental impacts of the food processing operation<br>• safe systems of work. |
| Underpinning Skills | Demonstrate skills to:<br>• incorporate confectionary, flavourings and fruits into ice creams and frozen dairy desserts |

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| | • identify defects in the preparation and manufacture of ice creams and frozen dairy desserts<br>• implement adjustments to process/equipment in response to system review<br>• report problems to designated person according to company policies and procedures<br>• overview the implementation of the HACCP plan<br>• carry out product sampling and testing according to the HACCP plan and operational procedures<br>• provide relevant information to work colleagues to facilitate understanding of, and compliance with, the Ethiopian Standards and associated regulations<br>• take action to improve own work practice as a result of self-evaluation, feedback from others, or changed work practices, regulations or technology<br>• use technology to access information, prepare reports, and to access and prepare relevant data<br>• implement workplace OHS procedures. |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Implement & Review the Production of Fermented Dairy Products & Dairy Desserts** |
| **Unit Code** | **IND DPP4 16 0613** |
| **Unit Descriptor** | This unit covers the skills and knowledge required to implement and review the standards and procedures for manufacture of fermented dairy products and dairy desserts. |

| Elements | Performance Criteria |
|---|---|
| 1. Monitor the production of fermented dairy products and dairy desserts to meet quality standards | 1.1 Appropriate production system is selected and the preferred sequence of activity, to prepare the system for operation, is implemented.<br>1.2 Resource requirements, ***materials and equipment*** for the preparation and manufacture of ***fermented dairy products*** and dairy desserts are documented and sourced.<br>1.3 A production schedule is implemented to ensure all resources and requirements are available and meet company requirements.<br>1.4 Data requirements, ***policies and procedures***, ***legislations*** and ***OHS requirements*** appropriate for food safety, quality and production standards are reviewed and interpreted.<br>1.5 Data collection points consistent with equipment capabilities and data requirements are established.<br>1.6 Procedures to deal with non-conformance in relation to process and the final product are developed.<br>1.7 Production system is set to operating specifications before and during production.<br>1.8 Process controls for the manufacture of fermented dairy products and dairy desserts are monitored. |
| 2. Diagnose, rectify and/or report problem arising from the preparation and manufacture of fermented milk products and dairy desserts | 2.1 Sensory evaluation and product testing protocols used to identify defects and non-compliant product are determined.<br>2.2 A system to identify defects in the preparation and manufacture of fermented dairy products and dairy desserts is implemented.<br>2.3 A sampling plan is developed and implemented.<br>2.4 Sensory analysis is conducted and analyzed.<br>2.5 Food tests are undertaken.<br>2.6 Adjustments to process/equipment as identified are implemented in response to analyzed results.<br>2.7 Problems are reported to designated person according to company policies and procedures. |

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| 3. Review production processes for fermented milk products and dairy desserts | 3.1 The CCPs and critical limits for product safety are reviewed.<br>3.2 Operating procedures are reviewed for food safety and quality.<br>3.3 Safe work systems for processing of fermented dairy products and dairy desserts are reviewed.<br>3.4 Environmental impacts and energy efficiencies are reviewed for processing of fermented dairy products and dairy desserts. |

| **Variable** | **Range** |
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| Materials and equipment | Fermentation equipment may include water baths, cabinets, tunnels, multipurpose tanks, fermentation tanks.<br>Materials used in fermentation may include raw materials/pre-processed materials to be fermented, starters such as single strain starters, multiple strain cultures, mixed strains.<br>Market of products includes internal and external customers and suppliers. |
| Fermented dairy products | Include crème fraiche, kefir, cultured butter milk and yoghurt and quark. |
| Policies and procedures | Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements. |
| OHS requirements | • legislation, regulations, Codes of practice<br>• Safety Data Sheets (SDSs)<br>• enterprise and process specific occupational health and safety requirements. |
| Legislation | Requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes the Food Standards Code including labeling, weights and measures legislation; and legislation covering food safety, environmental management, occupational health and safety, anti-discrimination and equal opportunity. |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Must demonstrate knowledge and skills competence to implement production of fermented dairy products and dairy desserts including:<br>• monitoring process controls;<br>• diagnosing and reporting problems in manufacturing;<br>• carrying out sensory evaluation and product testing; and<br>• reviewing the production system for food safety and quality and environmental impact |
| Underpinning Knowledge and Attitudes | Demonstrate Knowledge of:<br>• types of fermented dairy products and dairy desserts<br>• statutory compositional requirements for the different types of fermented dairy and dairy desserts<br>• the role of major ingredients in fermented dairy milk products and dairy desserts |

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| | • the interrelationships between suppliers of products and internal/external customers<br>• domestic and export markets for fermented dairy products and dairy desserts<br>• processes used in the preparation and manufacture of fermented dairy products and dairy desserts<br>• sequence of processes used in the preparation and manufacture of fermented dairy products and dairy desserts<br>• the output of each of the processes used in the preparation and manufacture of fermented dairy products and dairy desserts<br>• the production systems used for the preparation and manufacture of each fermented dairy and dairy dessert product, and the preferred sequence of activity to prepare the system for operation<br>• the critical factors in the preparation and manufacture of fermented dairy products and dairy desserts<br>• the resource requirements for the preparation and manufacture of fermented dairy products<br>• principles of operation of equipment and accessories used in the preparation and manufacture of fermented dairy products and dairy desserts<br>• potential product defects and their causes which may arise in the preparation and manufacture of fermented dairy products and dairy desserts<br>• the fermentation process as applied to dairy products<br>• formulation of fermented dairy products<br>• the potential product defects in fermented dairy products and dairy desserts and their causes<br>• testing procedures for raw materials through to manufactured product<br>• packaging procedures<br>• quality and continuous improvement processes<br>• sensory analysis techniques<br>• chemical and physical hazards which may affect milk based products<br>• procedures for milk product storage, handling and preparation<br>• safe work procedures<br>• sanitation and hygiene procedures<br>• HACCP principles and critical limits in a HACCP program<br>• identification of Critical Control Points (CCPs) and critical limits<br>• water and energy use and recycling in processing<br>• regulatory requirements associated with fermented dairy products and dairy desserts<br>• environmental impacts of the food processing operation safe systems of work |

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| Underpinning Skills | Demonstrate skills to:<br>• select the formulation of fermented dairy products and dairy desserts<br>• interpret a production schedule to ensure all resources and requirements are available and meet company requirements<br>• set the production system to operating specifications before and during production<br>• implement and supervise the production system for the preparation and manufacture of fermented dairy products and dairy desserts<br>• identify the potential product defects and their causes which may arise in the preparation and manufacture of fermented dairy products and dairy desserts<br>• determine and implement a system used to identify defects in the preparation and manufacture of fermented dairy products<br>• implement adjustments to process/equipment in response to system review<br>• report problems to designated person according to company policies and procedures<br>• overview the implementation of the HACCP plan<br>• carry out product sampling and testing according to the HACCP plan and operational procedures<br>• provide relevant information to work colleagues to facilitate understanding of, and compliance with, the Ethiopian Standards and associated regulations.<br>• take action to improve own work practice as a result of self-evaluation, feedback from others, or changed work practices, regulations or technology<br>• use technology to access information, prepare reports, and to access and prepare relevant data<br>• implement workplace OHS procedures. |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Apply Principles of Food Packaging** |
| **Unit Code** | **IND DPP4 17 0613** |
| **Unit Descriptor** | This unit of competency covers the skills and knowledge required to oversee packaging operations and assess the nature and likely causes of packaging problems. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify characteristics of packaging suitable for use with food products | 1.1. Packaging materials suitable for food application are identified.<br>1.2. Packaging interactions with food products are identified.<br>1.3. Environmental impact and handling features of packaging materials are identified.<br>1.4. Customer and legal requirements of packaging are identified.<br>1.5. Packaging material characteristics meet the needs of the food to be packaged. |
| 2. Apply packaging knowledge in a production environment | 2.1. Properties of packaging materials used in a ***packaging process and technologies*** are identified.<br>2.2. Costs of packaging materials are identified.<br>2.3. ***Policies and procedures*** for safe operation of the packaging process are established and/or reviewed.<br>2.4. ***Out-of-specification packaging outcomes*** are analyzed to identify probable cause.<br>2.5. Opportunities are identified and investigated for improvement to materials, processes or environmental impacts within level of technical responsibility.<br>2.6. Proposals are developed and implemented for improvement within level of authority and according to company procedures. |

| Variable | Range |
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| Packaging processes and technologies | include:<br>• active packaging materials<br>• vacuum packing |
| Policies and procedures | Product packaging and related work processes are consistent with company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements and takes account of Occupational Health and Safety (OHS) and environmental impact |
| Out-of-specification packaging outcomes | Follow-up action in response to out-of-specification results occurs in consultation with the relevant quality/technical expert responsible for packaging specifications |

| Evidence Guide | |
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| Critical Aspects of Competence | Must demonstrate knowledge and skills competence to:<br>• analyze packaging system components, including materials used and interaction with product, costs, processes, legal and customer requirements and environmental and handling implications<br>• analyze and confirm safety aspects of processes and equipment<br>• analyze non-conformances and packaging problems and determine probable cause<br>• propose improvements to the packaging system |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• properties of packaging materials designed to protect product and extend shelf-life<br>• packaging interactions with food products<br>costs of packaging materials<br>• legal requirements relating to packaged product, including Food Standards Code requirements and other legislation relevant to the product<br>• features of packaging design that preserve the product<br>• pathogens and spoilage that can occur in packaged food and the conditions required for these to occur<br>• impact of extrinsic factors on food products, such as processing method, temperature, water loss/humidity, maturity (applies to maturity of fruit and vegetables when harvested), handling, cleaning, sanitation and personal hygiene practices and gaseous composition of the storage atmosphere<br>• characteristics of product and its behavior when packaged over the shelf-life of the product<br>• factors that influence selection of packaging materials<br>• typical problems that occur in the packaging process, and likely causes and appropriate response options<br>• the characteristics of product handled and its behavior when packaged over the shelf-life of the product, for example, reactions that occur when canning some types of vegetables requiring appropriately coated cans, respiration that is ongoing after fresh fruit and vegetables are packaged requiring gas permeable packaging materials, and the effect of high moisture and high fat content products on the packaging process where MAP packaging processes are used |
| Underpinning Skills | Demonstrates skills to:<br>• identify properties of packaging materials as specified in packaging specifications for product handled<br>• identify the quality assurance systems in place to ensure that the packaged product meets customer and legal requirements |

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| | • identify factors that affect shelf-life of the packaged product and the features of packaging design that preserve the product<br>• identify problems that occur in the packaging process and investigate likely causes<br>• determine appropriate corrective action to prevent packaging non-conformance<br>• identify packaging materials suitable for use with food products, including plastics, paper-based materials, glass and metal-based materials<br>• describe the purpose of packaging and the properties of packaging materials designed to protect product and extend shelf-life, including the role of packaging to provide:<br>➢ protection of product from contamination (microbial, pest infestation, and physical damage)<br>➢ barriers (atmospheric, moisture, flavour and light)<br>➢ package sealability and seal integrity<br>➢ easy-to-open access to the product<br>➢ information to the consumer about the product<br>➢ market appeal<br>• identify legal requirements relating to packaged product, including Food Standards Code requirements and other legislation relevant to the product<br>• identify pathogens and spoilage that can occur in packaged food and the conditions required for these to occur<br>• identify features intrinsic to the food type, according to food type, such as pH, water activity, nutrient content, presence of microbiological compounds and biological structure<br>• identify extrinsic factors, such as processing method, temperature, water loss/humidity, maturity, handling, cleaning, sanitation and personal hygiene practices and gaseous composition of the storage atmosphere<br>• identify food spoilage indicators, including microbial contamination, enzymic browning and sensory degradation of characteristics, such as flavor, aroma, color and texture<br>• describe the features of packaging material requirements of products handled in the workplace, including coated packaging products, and active/interactive packaging films<br>• identify factors that influence selection of packaging materials, including market appeal, suitability for use with the food product/s to be packaged, compatibility with packaging technology, cost, environmental features, consumer safety/tamper evidence<br>• identify packaging methods and technologies designed to extend shelf-life, including active packaging materials, vacuum packing,<br>• describe the significance of factors, such as moisture and temperature in promoting/preventing product spoilage |

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| | • identify typical problems that occur in the packaging process, and outline likely causes and appropriate response options within level of responsibility<br>• identify relevant sources of technical expertise and related authority levels to address packaging issues<br>• use communication skills to interpret and complete work information to support operations of work team or area<br>• demonstrate and support cooperative work practices within a culturally diverse workforce |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Assess Compliance with Food Safety Programs** |
| **Unit Code** | **IND DPP4 18 0613** |
| **Unit Descriptor** | This unit of competency covers skills and knowledge required to assess compliance against an approved food safety program where the program is supported by a prescriptive template or tool or where compliance is checked against a food safety program that has been validated by a technical expert. |

| Elements | Performance Criteria |
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| 1. Plan the audit | 1.1. An audit plan is developed to meet the audit scope.<br>1.2. The plan is made capable of delivering the required outcomes and ***licensing/certification requirements*** within resource and time allocations.<br>1.3. Plan includes audit purpose, scope and relevant templates are approved ***food safety program***.<br>1.4. Activities and responsibilities for the audit are identified.<br>1.5. Audit timing (as required by legislation and/or client) is identified including timetable for each stage of the ***audit scope***.<br>1.6. Resource, personnel and reporting requirements are identified.<br>1.7. Follow up and completion procedures are identified.<br>1.8. Communication protocols are identified and established to facilitate the effective exchange of information and suited to the auditee environment. |
| 2. Confirm that the food business has documented required preliminary work | 2.1. The food and the method of distribution are defined.<br>2.2. Customers and intended use of food is identified.<br>2.3. The process is described and documented.<br>2.4. The ***food business*** has checked their documentation for accuracy and completeness. |
| 3. Confirm the food safety program is supported by a tool or template or has been validated | 3.1. The documented food safety program and related procedures, ***Legal requirements*** and ***prerequisite programs*** are assessed to confirm that they have a prescriptive tool or have been validated by a ***technical expert***.<br>3.2. The food business method of identifying and analyzing food safety hazards is reviewed.<br>3.3. Templates or the approved food safety program are correctly selected to meet audit scope. |

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| | 3.4. Templates or the approved food safety program **are *risk-based approaches*** and appropriately adapted to suit the needs of the business without adversely affecting food safety.<br>3.5. Documented verification records are reviewed to confirm that the requirements of the food safety program are being met.<br>3.6. Corrective actions required where processes are identified as not meeting targets or critical limits are assessed to confirm they meet the requirements of the template or food safety program.<br>3.7. Food safety prerequisite programs are assessed to confirm they are appropriate for the food business/industry sector to maintain a safe food environment.<br>3.8. ***Food safety program documents*** are reviewed to confirm currency, accuracy and adequacy to facilitate maintenance of an adequate food safety program. |
| 4. Collect evidence to review and assess implementation of food safety programs | 4.1. Evidence is collected to confirm that documented programs and procedures are working effectively, reflect actual practice and are consistently applied.<br>4.2. Evidence is collected to confirm that food safety monitoring and corrective actions are carried out according to procedure.<br>4.3. Evidence is collected to confirm that safety prerequisite programs are effective and consistently followed.<br>4.4. Evidence is collected to confirm that food safety records are completed and provide an accurate record of events.<br>4.5. Evidence is collected to confirm that records are accessed and analyzed to confirm effective program maintenance in accordance with the template or food safety program.<br>4.6. Evidence is collected to confirm that food safety skills and knowledge of food business personnel is commensurate with their work role.<br>4.7. Evidence is collected to confirm that the food safety program has been internally monitored and assessed, updated and improved by a technical expert. |
| 5. Manage the audit process | 5.1. Audit progress is monitored against the audit plan and any variation to plan is identified and addressed.<br>5.2. Circumstances requiring the audit plan to be adjusted are identified and negotiated in a timely manner.<br>5.3. Audits address audit scope and are conducted within time and resource constraints to meet quality and professional standards. |

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| | 5.4. The audit process is reviewed to identify opportunities for improvement. |
| 6. Consolidate audit outcomes | 6.1. Audit evidence is analyzed and assessed to identify any areas of non-compliance with legislation and/or the food safety program.<br>6.2. Non-conformities are identified and classified as agreed by the audit plan.<br>6.3. Non-conformities are reported in accordance with agreed client and/or legislative requirements.<br>6.4. Audit reports and/or certificates are prepared and submitted or presented as required to meet regulatory and client requirements.<br>6.5. A corrective action implementation plan defining proposed actions and timelines developed by the auditee is reviewed by the auditor to confirm that template or food safety program requirements are met.<br>6.6. Audit findings are reviewed to confirm that evidence is sufficient as defined by the template or approved food safety program. |
| 7. Confirm and close out corrective actions | 7.1. Implementation and effectiveness of corrective action is monitored and verified against the template or the approved food safety program.<br>7.2. Audit records are maintained to record corrective actions. |

| **Variable** | **Range** |
|---|---|
| Licensing**/**certification requirements | are determined by system owners |
| Food safety program | include both prerequisite programs and a risk-based analysis of food safety hazards to determine required control measures to eliminate, prevent or reduce hazards. Minimum legal requirements for food safety programs are specified in National Food Safety Standard or other relevant legislative requirements. The food safety program may be based on a template or externally developed program that is adapted to the needs of the business |
| Audit scope | describes the purpose, extent and boundaries of the audit. This may include:<br>• physical locations<br>• products<br>• processes<br>• time period covered by the audit<br>• extent of authority of the auditor |
| Food businesses | refers to a business, enterprise or activity where food is produced, processed, stored, displayed and/or sold. It may also include primary producers |

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| Legal requirements | The scope of the audit determines and may be determined by food safety legislation which may include:<br>• Food Standards Code<br>• relevant legislation and related codes of practice, including industry sector-specific legislation and related codes of practice, such as that relating to dairy and primary production and processing<br>• regulatory and commercial requirements relevant to importing countries<br>• legislation (e.g. Export Control Act)<br>Other legislation which may impact on the conduct of a food safety auditor may include legislation covering:<br>• Occupational Health and Safety (OHS),<br>• trade practices legislation<br>• environmental risk management<br>• legal contracts or agreements |
| Prerequisite programs | are also referred to as support programs, such as Good Manufacturing Practice (GMP), Good Agricultural Practice (GAP) and Good Hygiene Practice (GHP)<br>Prerequisite programs can be divided into two categories.<br>Infrastructure and maintenance programs. These may include:<br>• layout, design and construction of buildings and facilities<br>• supplies of air, water energy and other utilities<br>• equipment, including preventative maintenance, sanitary design and accessibility for maintenance and cleaning<br>• support services, including waste and sewage disposal<br>Operational prerequisite programs. These may include:<br>• personal hygiene<br>• cleaning and sanitation<br>• pest control<br>• measures for the prevention of cross-contamination<br>• packaging and labeling procedures<br>• supplier assurance<br>• chemical storage<br>• employee training<br>• maintenance<br>• calibration<br>• document control<br>• internal audit programs<br>• traceability and recall programs<br>• on-farm food safety schemes<br>• inspecting and testing regimes, including analytical and microbiological testing |
| Technical expert | The requirements of a technical expert are determined by the system owner. System owners may include:<br>• government regulators as well as private system owners |

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| Risk-based approaches | to controlling food safety are typically based on HACCP, described in the Codex Alimentarius guidelines |
| Food safety program documents | may include:<br>• documented statements of food safety policy and objectives<br>• documented procedures and records<br>• documented complaints register<br>• documents and records to ensure the effective development, implementation and updating of the food safety program |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Demonstrates knowledge and Attitude of:<br>• confirm that the food safety program and/or template is appropriate to the activities of the business<br>• review food safety program records to assess compliance against the approved food safety program and/or template<br>• collect and analyze evidence to confirm that the food safety program is consistently followed and controls all critical risks<br>• identify circumstances where variation or customizing of the template or food safety program requires further validation<br>• submit non-compliance reports to clearly identify the aspects of the food safety program that have broken down/need further development in order to prevent recurrence. |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• required content and scope of food safety programs as defined in the National Food Safety Standard or other relevant standards<br>• purpose and minimum requirements of risk-based approaches to managing food safety hazards, including the role of prescriptive templates or approved food safety programs in supporting a risk-based approach and the process used to validate these tools<br>• guidelines on implementing industry templates or approved food safety programs<br>• legal requirements of food businesses<br>• legal liability of auditors and protection against litigation and professional practice issues, including the circumstances under which an auditor could be prosecuted and insurance requirements<br>• audit activities and principles, including guidelines on audit stages and activities as outlined in ISO 19011:2002<br>• personal attributes required of food safety auditors, including those outlined in ISO 19011:2002, and additional system owner requirements where required<br>• role, responsibilities and powers of enforcement agencies, authorized officers and commercial auditors, including reporting responsibilities, legal liability of auditors and delegation of authority to commercial auditors as may apply in some states and territories |

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| | • information handling and management system protocols, including issues, such as rights of access to information, maintenance of confidentiality of audit information and reports and information dissemination requirements<br>• evidence appropriate for use in audit processes, including the difference between objective and hearsay evidence and methods for recording and managing evidence to provide reliable reference information in the event that evidence is challenged<br>• vocabulary and terms relating to food safety programs, including terms and jargon to describe technical processes, industry standards and common biological and chemical terms<br>• common biological, physical and chemical hazards that may occur in the food business and appropriate methods of control and critical limits as outlined in the approved food safety program or template<br>• the impact of (1) the design and construction of premises and (2) the selection, application and condition of equipment, on food safety as defined in Food Safety Standard<br>• role of prerequisite programs in controlling hazards, including the relationship between prerequisite programs and risk-based approaches, such as HACCP to controlling food safety hazards<br>• circumstances, implications and responsibilities in the event that the auditee requests that the audit ceases<br>• circumstances and authority to initiate cessation of an audit methods to assess skill requirements and options to confirm that the responsible personnel within the food business have the of food safety and food hygiene relevant to the food business |
| Underpinning Skills | Demonstrates skills to:<br>• plan and organize audit activities<br>• identify work processes and work flow<br>• interpret food safety programs including flow charts, Standard Operating Procedures (SOPs), and other process documentation<br>• describe each process step and identify food safety hazards<br>• conduct research to identify, collect and analyze evidence of compliance with food safety programs<br>• use communication skills to support evidence collection and outcome presentation<br>• identify and classify non-compliances<br>• prepare audit reports and certificates to meet regulatory and client requirements<br>• review corrective action implementation plans<br>• monitor the implementation of corrective actions<br>• maintain audit records |

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| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and HRM practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competency may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Plan and Organize Work** |
| **Unit Code** | **IND DPP4 19 0613** |
| **Unit Descriptor** | This unit covers the knowledge, skills and attitude required in planning and organizing work activities in a production application. It may be applied to a small independent operation or to a section of a large organization. |

| Elements | Performance Criteria |
|---|---|
| 1. Set objectives | 1.1 ***Objectives*** are planned consistent with and linked to work activities in accordance with organizational aims.<br>1.2 Objectives are stated as measurable targets with clear time frames.<br>1.3 Support and commitment of team members are reflected in the objectives.<br>1.4 Realistic and attainable objectives are identified. |
| 2. Plan and schedule work activities | 2.1 Tasks/work activities to be completed are identified and prioritized as directed.<br>2.2 Tasks/work activities are broken down into steps in accordance with set time frames and achievable components.<br>2.3 Task/work activities are assigned to appropriate team or individuals in accordance with agreed functions.<br>2.4 ***Resources*** are allocated as per requirements of the activity.<br>2.5 ***Schedule of work activities*** is coordinated with personnel concerned. |
| 3. Implement work plans | 3.1 ***Work methods and practices*** are identified in consultation with personnel concerned.<br>3.2 ***Work plans*** are implemented in accordance with set time frames, resources and ***standards***. |
| 4. Monitor work activities | 4.1 Work activities are monitored and compared with set objectives.<br>4.2 Work performance is monitored.<br>4.3 Deviations from work activities are reported and recommendations are coordinated with appropriate personnel and in accordance with set standards.<br>4.4 Reporting requirements are complied with in accordance with recommended format.<br>4.5 Timeliness of report is observed.<br>4.6 Files are established and maintained in accordance with standard operating procedures. |

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| 5. Review and evaluate work plans and activities | 5.1 Work plans, strategies and implementation are reviewed based on accurate, relevant and current information.<br>5.2 Review is done based on comprehensive consultation with appropriate personnel on outcomes of work plans and reliable feedback.<br>5.3 Results of review are provided to concerned parties and formed as the basis for adjustments/simplifications to be made to policies, processes and activities.<br>5.4 Performance appraisal is conducted in accordance with organization rules and regulations.<br>5.5 Performance appraisal report is prepared and documented regularly as per organization requirements.<br>5.6 Recommendations are prepared and presented to ***appropriate personnel/authorities***.<br>5.7 ***Feedback mechanisms*** are implemented in line with organization policies. |

| **Variable** | **Range** |
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| Objectives | May include but not limited to:<br>• Specific and General |
| Resources | May include but not limited to:<br>• Personnel<br>• Equipment and technology<br>• Services<br>• Supplies and materials<br>• Sources for accessing specialist advice<br>• Budget |
| Schedule of work activities | May include but not limited to:<br>• Daily<br>• Work-based<br>• Contractual and Regular |
| Work methods and practices | May include but not limited to:<br>• Legislated regulations and codes of practice<br>• Industry regulations and codes of practice<br>• Occupational health and safety practices |
| Work plans | May include but not limited to:<br>• Daily work plans<br>• Project plans<br>• Program plans<br>• Resource plans<br>• Skills development plans<br>• Management strategies and objectives |
| Standards | May include but not limited to:<br>• Performance targets<br>• Performance management and evaluation systems<br>• Occupational standards |

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| | • Employment contracts<br>• Client contracts<br>• Discipline procedures<br>• Workplace assessment guidelines<br>• Internal quality assurance<br>• Internal and external accountability and auditing requirements<br>• Training Regulation Standards<br>• Safety Standards |
| Appropriate personnel/ authorities | Appropriate personnel include:<br>• Management and Line Staff |
| Feedback mechanisms | May include but not limited to:<br>• Verbal feedback<br>• Informal feedback<br>• Formal feedback<br>• Questionnaire<br>• Survey and Group discussion |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Demonstrates skills and knowledge to:<br>• set objectives<br>• plan and schedule work activities<br>• implement work plans<br>• monitor work activities<br>• review and evaluate work plans and activities |
| Underpinning Knowledge and Attitudes | Demonstrates knowledge of:<br>• organization's strategic plan, policies rules and regulations, laws and objectives for work unit activities and priorities<br>• organizations policies, strategic plans, guidelines related to the role of the work unit<br>• team work and consultation strategies |
| Underpinning Skills | Demonstrates skill to:<br>• plan<br>• lead<br>• organize<br>• coordinate<br>• communicate<br>• inter-and intra-person/motivation skills<br>• present |
| Resource Implications | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Migrate to New Technology** |
| **Unit Code** | **IND DPP4 20 0613** |
| **Unit Descriptor** | This unit defines the competence required to apply skills and knowledge in using new or upgraded technology. The rationale behind this unit emphasizes the importance of constantly reviewing work processes, skills and techniques in order to ensure that the quality of the entire business process is maintained at the highest level possible through the appropriate application of new technology. To this end, the person is typically engaged in on-going review and research in order to discover and apply new technology or techniques to improve aspects of the organization's activities. |

| Elements | Performance Criteria |
|---|---|
| 1. Apply existing knowledge and techniques to technology and transfer | 1.1 Situations are identified where existing knowledge can be used as the basis for developing new skills.<br>1.2 New or upgraded technology skills are acquired and used to enhance learning.<br>1.3 New or upgraded equipment are identified, classified and used where appropriate, for the benefit of the organization. |
| 2. Apply functions of technology to assist in solving organizational problems | 2.1 Testing of new or upgraded equipment is conducted according to the specification manual.<br>2.2 Features of new or upgraded equipment are applied within the organization<br>2.3 Features and functions of new or upgraded equipment are used for solving organizational problems<br>2.4 Sources of information relating to new or upgraded equipment are accessed and used |
| 3. Evaluate new or upgraded technology performance | 3.1 New or upgraded equipment is evaluated for performance, usability and against OHS standards**.**<br>3.2 ***Environmental considerations*** are determined from new or upgraded equipment.<br>3.3 ***Feedback*** is sought from users where appropriate. |

| Variable | Range |
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| Environmental Considerations | May include but is not limited to:<br>• recycling, safe disposal of packaging (e.g. cardboard, polystyrene, paper, plastic) and correct disposal of waste materials by an authorized body |
| Feedback | May include but is not limited to:<br>• surveys,<br>• questionnaires,<br>• interviews and meetings. |

| Evidence Guide | |
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| Critical Aspects of Competence | Competence must confirm the ability to transfer the application of existing skills and knowledge to new technology |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• Broad awareness of current technology trends and directions in the industry (e.g. systems/procedures, services, new developments, new protocols)<br>• Vendor product directions<br>• Ability to locate appropriate sources of information regarding metal manufacturing and new technologies<br>• Current industry products/services, procedures and techniques with knowledge of general features<br>• Information gathering techniques |
| Underpinning Skills | Demonstrate skills of:<br>• Research skills for identifying broad features of new technologies<br>• Ability to assist in the decision making process<br>• Literacy skills in regard to interpretation of technical manuals<br>• Ability to solve known problems in a variety of situations and locations<br>• Evaluate and apply new technology to assist in solving organizational problems<br>• General analytical skills in relation to known problems |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Establish Quality Standards** |
| **Unit Code** | **IND DPP4 21 0613** |
| **Unit Descriptor** | This unit covers the knowledge, skills and attitudes required to establish quality specifications for work outcomes and work performance. It includes monitoring and participation in maintaining and improving quality, identifying critical control points in the production of quality output and assisting in planning and implementing of quality assurance procedures. |

| Elements | Performance Criteria |
|---|---|
| 1. Establish quality specifications for product | 1.1 Market specifications are ***sourced*** and ***legislated requirements*** identified.<br>1.2 Quality specifications are developed and agreed upon<br>1.3 Quality specifications are documented and introduced to organization staff / personnel in accordance with the organization policy<br>1.4 Quality specifications are updated when necessary |
| 2. Identify hazards and critical control points | 2.1. Critical control points impacting on quality are identified.<br>2.2. Degree of risk for each hazard is determined.<br>2.3. Necessary documentation is accomplished in accordance with organization quality procedures |
| 3. Assist in planning of quality assurance procedures | 3.1 Procedures for each identified control point are developed to ensure optimum quality.<br>3.2 Hazards and risks are minimized through application of appropriate controls.<br>3.3 Processes are developed to monitor the effectiveness of quality assurance procedures. |
| 4. Implement quality assurance procedures | 4.1 Responsibilities for carrying out procedures are allocated to staff and contractors.<br>4.2 Instructions are prepared in accordance with the enterprise's quality assurance program.<br>4.3 Staff and contractors are given induction training on the quality assurance policy.<br>4.4 Staff and contractors are given in-service training relevant to their allocated ***safety procedures***. |
| 5. Monitor quality of work outcome | 5.1 Quality requirements are identified<br>5.2 Inputs are inspected to confirm capability to meet quality requirements<br>5.3 Work is conducted to produce required outcomes |

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| | 5.4 Work processes are monitored to confirm quality of output and/or service<br>5.5 Processes are adjusted to maintain outputs within specification. |
| 6. Participate in maintaining and improving quality at work | 6.1 Work area, materials, processes and product are routinely monitored to ensure compliance with quality requirements.<br>6.2 Non-conformance in inputs, process, product and/or service is identified and reported according to workplace reporting requirements.<br>6.3 Corrective action is taken within level of responsibility, to maintain quality standards.<br>6.4 Quality issues are raised with designated personnel. |
| 7. Report problems that affect quality | 7.1 Potential or existing quality problems are recognized.<br>7.2 Instances of variation in quality are identified from specifications or work instructions.<br>7.3 Variation and potential problems are reported to supervisor/manager according to enterprise guidelines. |

| **Variable** | **Range** |
|---|---|
| Sourced | May include but is not limited to:<br>• End-users<br>• Customers or stakeholders |
| Legislated requirements | May include but is not limited to:<br>• Verification of product quality as part of consumer legislation or specific legislation related to product content or composition. |
| Safety procedures. | May include but is not limited to:<br>• Use of tools and equipment for fabrication/production/ manufacturing works<br>• Workplace environment and handling of material safety,<br>• Following occupational health and safety procedures designated for the task<br>• Respect the policies, regulations, legislations, rule and procedures for manufacturing/production/fabrication works |

| **Evidence Guide** | |
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| Critical Aspect of Competence | Demonstrates skills and knowledge to:<br>• Monitor quality of work<br>• Establish quality specifications for product<br>• Participate in maintaining and improving quality at work<br>• Identify hazards and critical control points in the production of quality product<br>• Assist in planning of quality assurance procedures<br>• Report problems that affect quality<br>• Implement quality assurance procedures |

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| Underpinning Knowledge | Demonstrates knowledge of:<br>• work and product quality specifications<br>• quality policies and procedures<br>• improving quality at work<br>• hazards and critical points of operation<br>• obtaining and using information<br>• applying federal and regional legislation within day-today work activities<br>• accessing and using management systems to keep and maintain accurate records<br>• requirements for correct preparation and operation<br>• technical writing |
| Underpinning Skills | Demonstrates skills to:<br>• monitor quality of work<br>• establish quality specifications for product<br>• participate in maintaining and improving quality at work<br>• identify hazards and critical control points in the production of quality product<br>• assist in planning of quality assurance procedures<br>• report problems that affect quality<br>• implement quality assurance procedures |
| Resource Implications | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Develop Individuals and Team** |
| **Unit Code** | **IND DPP4 22 0613** |
| **Unit Descriptor** | This unit covers the knowledge, skills and attitudes required to determine individual and team development needs and facilitate the development of the workgroup. |

| Elements | Performance Criteria |
|---|---|
| 1. Provide team leadership | 1.1 ***Learning and development needs*** are systematically identified and implemented in line with ***organizational requirements***.<br>1.2 Learning plan to meet individual and group training and developmental needs is collaboratively developed and implemented.<br>1.3 Individuals are encouraged to self-evaluate performance and identify areas for improvement.<br>1.4 ***Feedback on performance*** of team members is collected from relevant sources and compared with established team learning process. |
| 2. Foster individual and organizational growth | 2.1 Learning and development program goals and objectives are identified to match the specific knowledge and skills requirements of competence standards.<br>2.2 ***Learning delivery methods*** are made appropriate to the learning goals, the learning style of participants and availability of equipment and resources.<br>2.3 Workplace learning opportunities and coaching/ mentoring assistance are provided to facilitate individual and team achievement of competencies.<br>2.4 Resources and timelines required for learning activities are identified and approved in accordance with organizational requirements. |
| 3. Monitor and evaluate workplace learning | 3.1 Feedback from individuals or teams is used to identify and implement improvements in future learning arrangements.<br>3.2 Outcomes and performance of individuals/teams are assessed and recorded to determine the effectiveness of development programs and the extent of additional support.<br>3.3 Modifications to learning plans are negotiated to improve the efficiency and effectiveness of learning.<br>3.4 Records and reports of competence are maintained within organizational requirement. |
| 4. Develop team commitment and cooperation | 4.1 Open communication processes to obtain and share information is used by team.<br>4.2 Decisions are reached by the team in accordance with its agreed roles and responsibilities.<br>4.3 Mutual concern and camaraderie are developed in the team. |

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| 5. Facilitate accomplishment of organizational goals | 5.1 Team members are actively participated in team activities and communication processes.<br>5.2 Individual and joint responsibility is developed by teams' members for their actions.<br>5.3 Collaborative efforts are sustained to attain organizational goals. |

| **Variable** | **Range** |
|---|---|
| Learning and development needs | May include but is not limited to:<br>• Coaching, monitoring and/or supervision<br>• Formal/informal learning program<br>• Internal/external training provision<br>• Work experience/exchange/opportunities<br>• Personal study<br>• Career planning/development<br>• Performance evaluation<br>• Workplace skills assessment<br>• Recognition of prior learning |
| Organizational requirements | May include but is not limited to:<br>• Quality assurance and/or procedures manuals<br>• Goals, objectives, plans, systems and processes<br>• Legal and organizational policy/guidelines and requirements<br>• Safety policies, procedures and programs<br>• Confidentiality and security requirements<br>• Business and performance plans<br>• Ethical standards<br>• Quality and continuous improvement processes and standards |
| Feedback on performance | May include but is not limited to:<br>• Formal/informal performance evaluation<br>• Obtaining feedback from supervisors and colleagues<br>• Obtaining feedback from clients<br>• Personal and reflective behavior strategies<br>• Routine and organizational methods for monitoring service delivery |
| Learning delivery methods | May include but is not limited to:<br>• On the job coaching or monitoring<br>• Problem solving<br>• Presentation/demonstration<br>• Formal course participation<br>• Work experience and involvement in professional networks<br>• Conference and seminar attendance |

| **Evidence Guide** | |
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| Critical Aspects of Competence | Demonstrates skills and knowledge to:<br>• identify and implement learning opportunities for others |

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| | • give and receive feedback constructively<br>• facilitate participation of individuals in the work of the team<br>• negotiate plans to improve the effectiveness of learning<br>• prepare learning plans to match skill needs<br>• access and designate learning opportunities |
| Underpinning Knowledge and Attitude | Demonstrates knowledge of:<br>• coaching and monitoring principles<br>• how to work effectively with team members who have diverse work styles, aspirations, cultures and perspective<br>• how to facilitate team development and improvement<br>• methods and techniques to obtain and interpreting feedback<br>• methods for identifying and prioritizing personal development opportunities and options<br>• career paths and competence standards in the industry |
| Underpinning Skills | Demonstrates skills to:<br>• read and understand a variety of texts, preparing general information and documents according to target audience; spell with accuracy; use grammar and punctuation effective relationships and conflict management<br>• communicate including receiving feedback and reporting, maintaining effective relationships and conflict management<br>• plan and organize required resources and equipment to meet learning needs<br>• coach and mentor skills to provide support to colleagues<br>• report to organize information; assess information for relevance and accuracy; identify and elaborate on learning outcomes<br>• facilitate and conduct small group training sessions<br>• relate to people from a range of social, cultural, physical and mental backgrounds |
| Resource Implications | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
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| **Unit Title** | **Utilize Specialized Communication Skills** |
| **Unit Code** | **IND DPP4 23 0613** |
| **Unit Descriptor** | This unit covers the knowledge, skills and attitudes required to use specialized communication skills to meet specific needs of internal and external clients, conduct interviews, facilitate group discussions, and contribute to the development of communication strategies. |

| Elements | Performance Criteria |
|---|---|
| 1. Meet common and specific communication needs of clients and colleagues | 1.1 Specific communication needs of clients and colleagues are identified and met.<br>1.2 Different approaches are used to meet communication needs of clients and colleagues.<br>1.3 Conflict is addressed promptly and in a timely way and in a manner which does not compromise the standing of the organization. |
| 2. Contribute to the development of communication strategies | 2.1 ***Strategies*** for internal and external dissemination of information are developed, promoted, implemented and reviewed as required.<br>2.2 Channels of communication are established and reviewed regularly.<br>2.3 Coaching in effective communication is provided.<br>2.4 Work related network and relationship are maintained as necessary.<br>2.5 Negotiation and conflict resolution strategies are used where required.<br>2.6 Communication with clients and colleagues is appropriate to individual needs and organizational objectives. |
| 3. Represent the organization | 3.1 When participating in internal or external fora, presentation is relevant, appropriately researched and presented in a manner to promote the organization.<br>3.2 Presentation is made clear and sequential and delivered within a predetermined time.<br>3.3 Appropriate media is utilized to enhance presentation.<br>3.4 Differences in views are respected.<br>3.5 Written communication is made consistent with organizational standards.<br>3.6 Inquiries are responded in a manner consistent with organizational standard. |

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| 4. Facilitate group discussion | 4.1 Mechanisms which enhance ***effective group interaction*** are defined and implemented.<br>4.2 Strategies which encourage all group members to participate are used routinely.<br>4.3 Objectives and agenda are routinely set and followed for meetings and discussions.<br>4.4 Relevant information is provided to group to facilitate outcomes.<br>4.5 Evaluation of group communication strategies is undertaken to promote participation of all parties.<br>4.6 Specific communication needs of individuals are identified and addressed. |
| 5. Conduct interview | 5.1 A range of appropriate communication strategies are employed in ***interview situations***.<br>5.2 Different ***types of interview*** are conducted in accordance with the organizational procedures.<br>5.3 Records of interviews are made and maintained in accordance with organizational procedures.<br>5.4 Effective questioning, listening and nonverbal communication techniques are used to ensure that required message is communicated. |

| **Variable** | **Range** |
|---|---|
| Strategies | May include but is not limited to:<br>• Recognizing own limitations<br>• Utilizing techniques and aids<br>• Providing written drafts<br>• Verbal and non-verbal communication |
| Effective group interaction | May include but is not limited to:<br>• Identifying and evaluating what is occurring within an interaction in a non-judgmental way<br>• Using active listening<br>• Making decision about appropriate words, behavior<br>• Putting together response which is culturally appropriate<br>• Expressing an individual perspective<br>• Expressing own philosophy, ideology and background and exploring impact with relevance to communication |
| Interview situations | May include but is not limited to:<br>• Establish rapport<br>• obtain facts and information<br>• Facilitate resolution of issues<br>• Develop action plans<br>• Diffuse potentially difficult situation |
| Types of Interview | May include but is not limited to:<br>• Related to staff issues |

| | |
|---|---|
| | • Routine<br>• Confidential<br>• Evidential<br>• Non-disclosure<br>• Disclosure |

| **Evidence Guide** | |
|---|---|
| Critical Aspects of Competence | Demonstrates skills and knowledge to:<br>• Demonstrate effective communication skills with clients and work colleagues accessing service<br>• Adopt relevant communication techniques and strategies to meet client particular needs and difficulties |
| Underpinning Knowledge and Values | Demonstrates knowledge of:<br>• communication process<br>• dynamics of groups and different styles of group leadership<br>• communication skills relevant to client groups |
| Underpinning Skills | Demonstrates skills of:<br>• full range of communication techniques including:<br>➢ active listening<br>➢ feedback<br>➢ interpretation<br>➢ role boundaries setting<br>➢ negotiation<br>➢ establishing empathy<br>➢ communication strategies<br>• communicate to fulfill job roles as specified by the organization |
| Resource Implications | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
|---|---|
| **Unit Title** | **Manage and Maintain Small/Medium Business Operations** |
| **Unit Code** | **IND DPP4 24 0613** |
| **Unit Descriptor** | This unit covers the operation of day-to-day business activities in a micro or small business. The strategies involve developing, monitoring and managing work activities and financial information, developing effective work habits, and adjusting work schedules as needed. |

| Elements | Performance Criteria |
|---|---|
| 1. Identify daily work requirements | 1.1 Work requirements are identified for a given time period by taking into consideration ***resources*** and constraints.<br>1.2 Work activities are prioritized based on business needs, requirements and deadlines.<br>1.3 If appropriate, work is allocated to relevant staff or contractors to optimize efficiency. |
| 2. Monitor and manage work | 2.1 People, resources and/or equipment are coordinated to provide optimum results.<br>2.2 Staff, clients and/or contractors are communicated within a clear and regular manner, to monitor work in relation to ***business goals*** or timelines.<br>2.3 ***Problem solving techniques*** are applied to work situations to overcome difficulties and achieve positive outcomes. |
| 3. Develop effective work habits | 3.1 Work and personal priorities are identified and a balance is achieved between competing priorities using appropriate ***time management strategies***.<br>3.2 Input from ***internal and external sources*** is sought and used to develop and refine new ideas and approaches.<br>3.3 Business or inquiries is/are responded to promptly and effectively.<br>3.4 Information is presented in a format appropriate to the industry and audience. |
| 4. Interpret financial information | 4.1 Relevant documents and reports are identified.<br>4.2 Documents and reports are read and understood and any implications discussed with appropriate persons.<br>4.3 Data and numerical calculations are analyzed, checked, evaluated, organized and reconciled.<br>4.4 Daily financial records and cash flow are maintained correctly and in accordance with legal and accounting requirements.<br>4.5 Invoices and payments are prepared and distributed in a timely manner and in accordance with legal requirements.<br>4.6 Outstanding accounts are collected or followed-up on. |

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| 5. Evaluate work performance | 5.1 Opportunities for improvements are monitored according to business demands.<br>5.2 Work schedules are adjusted to incorporate necessary modifications to existing work and routines or changing needs and requirements.<br>5.3 Proposed changes are clearly communicated and recorded to aid in future planning and evaluation.<br>5.4 Relevant codes of practice are used to guide an ethical approach to workplace practices and decisions. |

| Variable | Range |
|---|---|
| Resources | May include but is not limited to:<br>• staff<br>• money<br>• time<br>• equipment and space |
| Business goals | May include but is not limited to:<br>• sales targets<br>• budgetary targets<br>• team and individual goals<br>• production targets<br>• reporting deadlines |
| Problem solving techniques | May include but is not limited to:<br>• gaining additional research and information to make better informed decisions<br>• looking for patterns<br>• considering related problems or those from the past and how they were handled<br>• eliminating possibilities<br>• identifying and attempting sub-tasks<br>• collaborating and asking for advice or help from additional sources |
| Time management strategies | May include but is not limited to:<br>• prioritizing and anticipating<br>• short term and long term planning and scheduling<br>• creating a positive and organized work environment<br>• clear timelines and goal setting that is regularly reviewed and adjusted as necessary<br>• breaking large tasks into smaller tasks<br>• getting additional support if identified and necessary |
| Internal and external sources | May include but is not limited to:<br>• staff and colleagues<br>• management, supervisors, advisors or head office<br>• relevant professionals such as lawyers, accountants, management consultants and professional associations |

| Evidence Guide | |
|---|---|
| Critical Aspects of Competence | A person must be able to demonstrate:<br>• ability to identify daily work requirements and allocate work appropriately<br>• ability to interpret financial documents in accordance with legal requirements |
| Underpinning Knowledge and Attitudes | Demonstrate knowledge of:<br>• Federal and Local Government legislative requirements affecting business operations, especially in regard to Occupational Health and Safety (OHS), equal employment opportunity, industrial relations and anti-discrimination<br>• technical or specialist skills relevant to the business operation<br>• relevant industry code of practice<br>• planning techniques to establish realistic timelines and priorities<br>• identification of relevant performance measures<br>• quality assurance principles and methods<br>• relevant marketing, management, sales and financial concepts<br>• methods for monitoring performance and implementing improvements<br>• structured approaches to problem solving, idea management and time management |
| Underpinning Skills | Demonstrate skills to:<br>• interpret legal requirements, company policies and procedures and immediate, day-to-day demands<br>• communicate using questioning, clarifying, reporting, and giving and receiving constructive feedback<br>• numeracy skills for performance information, setting targets and interpreting financial documents and reports<br>• technical and analytical skills to interpret business document, reports and financial statements and projections<br>• relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities<br>• solve problem and develop contingency plans<br>• using computers and software packages to record and manage data and to produce reports<br>• evaluate using assessment work and outcomes<br>• observe for identifying appropriate people, resources and to monitor work |
| Resource Implications | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

| Occupational Standard: Dairy Products Processing Level IV | |
|---|---|
| **Unit Title** | **Apply Problem Solving Techniques and Tools** |
| **Unit Code** | **IND DPP4 25 0613** |
| **Unit Descriptor** | This unit of competency covers the knowledge, skills and attitude required to apply scientific problem solving techniques and tools to enhance quality, productivity and other kaizen elements on continual basis. |

| **Elements** | **Performance criteria** |
|---|---|
| 1. Identify and select theme/problem. | 1.1 ***Safety requirements*** are followed in accordance with safety plans and procedures.<br>1.2 All possible problems related to the process /Kaizen elements are listed using ***statistical tools and techniques***.<br>1.3 All possible problems related to kaizen elements are identified and listed on Visual Management Board/Kaizen Board.<br>1.4 Problems are classified based on obviousness of cause and action.<br>1.5 Critical factors like the number of customers affected, Potentials for bottlenecks, and number of complaints etc… is selected.<br>1.6 Problems related to priorities of ***Kaizen Elements*** are given due emphasis and selected. |
| 2. Grasp current status and set goal. | 2.1 The extent of the problem is defined.<br>2.2 Appropriate and achievable goal is set. |
| 3. Establish activity plan. | 3.1 The problem is confirmed.<br>3.2 High priority problem is selected.<br>3.3 The extent of the problem is defined.<br>3.4 Activity plan is established as per ***5W1H***. |
| 4. Analyze causes of a problem. | 4.1 All possible causes of a problem are listed.<br>4.2 Cause relationships are analyzed using***4M1E***.<br>4.3 Causes of the problems are identified.<br>4.4 Root causes are selected.<br>4.5 The root cause which is most directly related to the problem is selected.<br>4.6 All possible ways are listed using ***creative idea generation*** to eliminate the most critical root cause.<br>4.7 The suggested solutions are carefully tested and evaluated for potential complications. |

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| | 4.8 Detailed summaries of the action plan are prepared to implement the suggested solution. |
| 5. Examine countermeasures and their implementation. | 5.1 Action plan is implemented by ***medium KPT*** members.<br>5.2 Implementation is monitored according to the agreed procedure and activities are checked with preset plan. |
| 6. Assess effectiveness of the solution. | 6.1 ***Tangible and intangible results*** are identified.<br>6.2 The results are verified over time.<br>6.3 Tangible results are compared with targets using ***various types of diagram***. |
| 7. Standardize and sustain operation. | 7.1 If the goal is achieved, the new procedures are standardized and made part of daily activities.<br>7.2 All employees are trained on the new ***Standard Operating Procedures (SOPs)***.<br>7.3 SOP is verified and followed by all employees.<br>7.4 The next problem is selected to be tackled by the team. |

| **Variables** | **Range** |
|---|---|
| Safety requirements | may include but not limited to:<br>• OHS requirements include legislation, material safety, managements system, hazardous substances and dangerous goods code and local safe operating procedures<br>• Work is carried out in accordance with legislative obligations, environmental legislations, relevant health regulation, manual handling procedure and organization insurance requirements |
| Statistical tools and techniques | may include but not limited to:<br>• 7 QC tools may include:<br>➢ Stratification<br>➢ Pareto Diagram<br>➢ Cause and Effect Diagram<br>➢ Check Sheet<br>➢ Control Chart/Graph<br>➢ Histogram<br>➢ Scatter Diagram<br>• QC techniques may include:<br>➢ Brain storming<br>➢ Why analysis<br>➢ What if analysis<br>➢ 5W1H |
| Kaizen Elements | may include but not limited to:<br>• Quality<br>• Cost<br>• Productivity |

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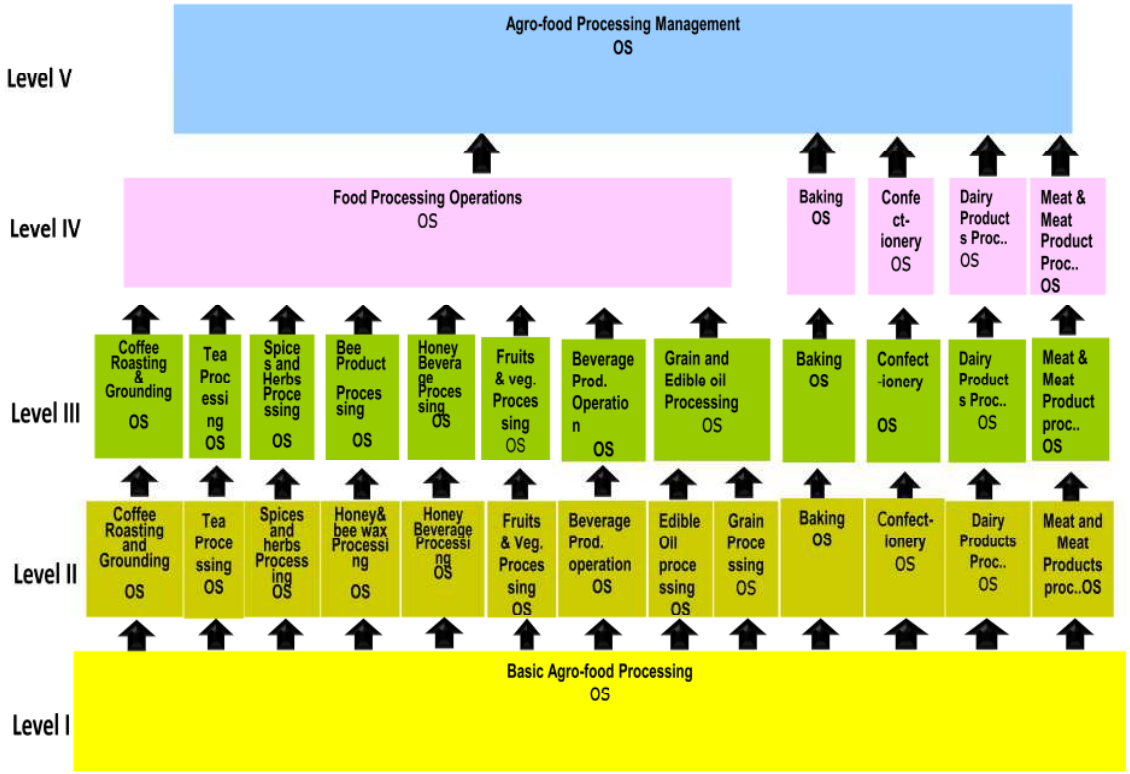
|---|---|
| | • Delivery<br>• Safety<br>• Moral<br>• Environment and Gender equality |
| 5W1H | may include but not limited to:<br>• Who: person in charge<br>• Why: objective<br>• What: item to be implemented<br>• Where: location<br>• When: time frame<br>• How: method |
| 4M1E | may include but not limited to:<br>• Man<br>• Machine<br>• Method<br>• Material and Environment |
| Creative idea generation | may include but not limited to:<br>• Brainstorming<br>• Exploring and examining ideas in varied ways<br>• Elaborating and extrapolating<br>• Conceptualizing |
| Medium KPT | may include but not limited to:<br>• 5S<br>• 4M (machine, method, material and man)<br>• 4P (Policy, procedures, People and Plant)<br>• PDCA cycle<br>• Basics of IE tools and techniques |
| Tangible and intangible results | may include but not limited to:<br>• Tangible result may include quantifiable data<br>• Intangible result may include qualitative data |
| Various types of diagram | may include but not limited to:<br>• Line graph<br>• Bar graph<br>• Pie-chart<br>• Scatter and Affinity diagrams |
| Standard Operating Procedures (SOPs) | may include but not limited to:<br>• The customer demand<br>• The most efficient work routine (steps)<br>• The cycle times required to complete work elements<br>• All process quality checks required to minimize defects/errors<br>• The exact amount of work in process required |

| **Evidence Guide** | |
|---|---|
| Critical Aspects of Assessment | Demonstrates skills and knowledge competencies to:<br>• Apply all relevant procedures and regulatory requirements to ensure quality and productivity of an organization. |

| | |
|---|---|
| | • Detect non-conforming products/services in the work area<br>• Apply effective problem solving approaches/strategies.<br>• Implement and monitor improved practices and procedures<br>• Apply statistical quality control tools and techniques. |
| Underpinning Knowledge and Attitude | Demonstrates knowledge of:<br>• QC story/PDCA cycle/<br>• QC story/ Problem solving steps<br>• QCC techniques<br>• 7 QC tools<br>• Basic IE tools and techniques.<br>• SOP<br>• Quality requirements associated with the individual's job function and/or work area<br>• Workplace procedures associated with the candidate's regular technical duties<br>• Relevant health, safety and environment requirements<br>• organizational structure of the enterprise<br>• Lines of communication<br>• Methods of making/recommending improvements.<br>• Reporting procedures |
| Underpinning Skills | Demonstrates skills to:<br>• Apply problem solving techniques and tools<br>• Apply statistical analysis tools<br>• Apply Visual Management Board/Kaizen Board.<br>• Detect non-conforming products or services in the work area<br>• Document and report information about quality, productivity and other kaizen elements.<br>• Contribute effectively within a team to recognize and recommend improvements in quality, productivity and other kaizen elements.<br>• Implement and monitor improved practices and procedures.<br>• Organize and prioritize activities and items.<br>• Read and interpret documents describing procedures<br>• Record activities and results against templates and other prescribed formats. |
| Resources Implication | Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. |
| Methods of Assessment | Competence may be assessed through:<br>• Interview / Written Test<br>• Observation / Demonstration with Oral Questioning |
| Context of Assessment | Competence may be assessed in the work place or in a simulated work place setting. |

**Sector: Industry**
**Sub- sector: Agro-food Processing**



## Acknowledgement

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This occupational standard was developed on the date of June 25, 2013 at Debre Zeyit Ethiopian Management Institute.

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