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**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARDS**

**FOR**

**DAIRY PLANT MANAGER**

**LEVEL 4**



TVET CDACC

P.O. BOX 15745-00100

NAIROBI

First published 2019

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# FOREWORD

The provision of quality education and training is fundamental to the Government’s overall strategy for social economic development. Quality education and training will contribute to achievement Kenya’s development blue print and sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned in the Constitution and this resulted to the formulation of the Policy Framework for Reforming Education and Training. A key feature of this policy is the radical change in the design and delivery of the TVET training. This policy document requires that training in TVET be competency based, curriculum development be industry led, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that these Occupational Standards were developed for the purpose of developing a competency-based curriculum for Dairy Plant Management Level 4. These Occupational Standards will also be the bases for assessment of an individual for competence certification.

It is my conviction that these Occupational Standards will play a great role towards development of competent human resource for the Dairy sector’s growth and sustainable development.

**PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING**

**MINISTRY OF EDUCATION**

# PREFACE

Kenya Vision 2030 aims to transform the country into a newly industrializing, “middle-income country providing a high-quality life to all its citizens by the year 2030”. Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through life-long education and training. TVET has a responsibility of facilitating the process of inculcating knowledge, skills and attitudes necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency Based Education and Training (CBET).

The Technical and Vocational Education and Training Act No. 29 of 2013 and the sessional paper No. 14 of 2012 on Reforming Education and Training in Kenya, emphasized the need toreform curriculum development, assessment and certification. This called for shift to CBET to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labour force.

The TVET Curriculum Development, Assessment and Certification Council (TVET CDACC), in conjunction with Dairy Sector Skills Advisory Committee (SSAC), German International Cooperation and Ministry of Agriculture, Livestock and Fisheries have developed these Occupational Standards for a Dairy Plant Manager. TVET CDACC in conjunction with Micro Enterprises Support Programme Trust (MESPT) have reviewed these Occupational Standards and incorporated Food Safety. These occupational standards will be the basis for development of competency-based curriculum for Dairy Plant Management Level 4. These Standards will also be the basis for assessment of an individual for competence certification.

The occupational standards are designed and organized with clear performance criteria for each element of a unit of competency. These standards also outline the required knowledge and skills as well as evidence guide.

I am grateful to the Council Members, Council Secretariat, Dairy SSAC, Food Safety SSAC, expert workers and all those who participated in the development and review of these occupational standards.

**Prof. CHARLES M. M. ONDIEKI, PhD, FIET (K), Con. Eng. Tech.**

**CHAIRMAN, TVET CDACC**

# ACKNOWLEDGMENT

These Occupational Standards were developed through combined effort of various stakeholders from private and public organizations. I am sincerely thankful to the management of these organizations for allowing their staff to participate in this course. I wish to acknowledge the invaluable contribution of industry players who provided inputs towards the development of these Standards.

I thank TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) for providing guidance on the development of these Standards. My gratitude goes to the Dairy Sector Skills Advisory Committee (SSAC) members for their contribution to the development of these Standards. I thank all the individuals and organizations who participated in the validation of these Standards.

My gratitude also goes to NEPAD Planning and Coordinating Agency (NPCA) of the Africa Union Commission and German Ministry of Economic Cooperation and Development (BMZ) through its implementing agency German International Cooperation (GIZ) GmbH which enabled the development of these Standards through the CAADP ATVET project.

I also appreciate the office of the National Coordinator of GIZ CAADP ATVET Project which was instrumental in the cooperation between the project team, Ministry of Agriculture, Livestock and Fisheries (MoALF) and Ministry of Education.

Much gratitude goes to Micro Enterprises Support Program Trust (MESPT) who initiated the review process and the incorporation of Food Safety in the Occupational Standards. I acknowledge the Danish International Development Agency (DANIDA) and the European Union (EU) who sponsored the review process.

I acknowledge all other institutions which in one way or another contributed to the development of these Standards.

**CHAIRPERSON**

**DAIRY SECTOR SKILLS ADVISORY COMMITTEE**

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# ACRONYMS AND ABBREVIATIONS

ATVET Agricultural Technical and Vocational Education and Training

BC Basic Competency

CAADP Comprehensive Africa Agricultural Development Programme

CDACC Curriculum Development, Assessment and Certification Council

CR Core Competency

DA Dairy Sector

DANIDA Danish International Development Agency

DTI Dairy Training Institute

FAO Food and Agriculture Organization

GIZ German International Cooperation

GMP Good Manufacturing Practices

ICT Information Communication Technology

IFAD International Fund for Agricultural Development

MESPT Micro Enterprises Support Program Trust

MoALF Ministry of Agriculture, Livestock and Fisheries

NEMA National Environmental Management Authority

OS Occupational Standards

OSHA Occupation Safety and Health Act

OSHS Occupation Safety and Health Standards

PM Plant Manager

PPE Personal Protective Equipment

SDCP Smallholder Dairy Commercialization Programme

SSAC Sector Skills Advisory Committee

TVET Technical and Vocational Education and Training

UHT Ultra Heat Treated

USAID United States Agency for International Development

# KEY TO UNIT CODE

**DA/OS/PM/BC/01/4/B**

Industry or sector

Occupational Standards

Occupational area

Type of competency

Competency number

Competency level

Version control

# OVERVIEW

Dairy Plant Management Level 4 qualification consists of competencies that an individual must achieve to supervise processing activities in a dairy plant. It entails chilling raw milk; processing fluid milk, fermented milk products and fat-based milk products, and producing cheese.

This qualification consists of the following basic and core competencies:

**BASIC COMPETENCIES**

1. Demonstrate communication skills
2. Demonstrate numeracy skills
3. Demonstrate digital literacy
4. Demonstrate entrepreneurial skills
5. Demonstrate employability skills
6. Demonstrate environmental literacy
7. Demonstrate occupational safety and health practices

**CORE COMPETENCIES**

1. Chill raw milk
2. Process fluid milk
3. Process fermented milk products
4. Process fat-based milk products
5. Produce cheese

# BASIC UNITS OF COMPETENCY

## DEMONSTRATE COMMUNICATION SKILLS

**UNIT CODE:** DA/OS/PM/BC/01/4/B

**UNIT DESCRIPTION**

This unit covers the competencies required to gather, interpret and convey information in response to workplace requirements and to lead in the dissemination and discussion of ideas, information and issues in the workplace.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Obtain and convey workplace information | * 1. Specific and relevant information is accessed from ***appropriate sources***   2. Effective questioning, active listening and speaking skills are used to gather and convey information   3. Appropriate ***medium*** is used to transfer information and ideas   4. Appropriate non- verbal communication is used   5. Appropriate lines of communicationwith supervisors and colleagues are identified and followed   6. Defined workplace procedures for the location and ***storage*** of information are used   7. Personal interaction is carried out clearly and concisely |
| 1. Complete relevant work-related documents | * 1. Range of forms relating to conditions of employment are completed accurately and legibly   2. Workplace data is recorded on standard workplace forms and documents   3. Basic mathematical processesare used for routine calculations   4. Errors in recording information on forms/ documents are identified and properly acted upon   5. Reporting requirements to supervisor are completed according to organizational guidelines |
| 1. Communicate information about workplace processes | 1. Appropriate method of communication is selected 2. Multiple operations involving several topics areas are communicated accordingly 3. Questions are used to gain extra information 4. Correct sources of information are identified 5. Information is selected and organized correctly 6. Verbal and written reporting is undertaken when required 7. Communication skills are maintained in all situations |
| 1. Lead workplace discussion | 1. Response to workplace issues are sought 2. Response to workplace issues are provided immediately 3. Constructive contributions are made to workplace discussions on such issues as production, quality and safety 4. Goals/objectives and action plan undertaken in the workplace are communicated accordingly |
| 1. Identify and communicate issues arising in the workplace | 1. Issues and problems are identified as they arise 2. Information regarding problems and issues are organized coherently to ensure clear and effective communication 3. Dialogue is initiated with appropriate personnel 4. Communication problems and issues are raised as they arise |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| * Methods of communication include but not limited to: | * + Non-verbal gestures   + Verbal   + Face to face   + Two-way radio   + Speaking to groups   + Using telephone   + Written * Internet |
| * Workplace discussion include but not limited to: | * Coordination meetings * Toolbox discussion * Peer-to-peer discussion |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Organize information
* Understand and convey intended meaning
* Participate in variety of workplace discussions
* Comply with organization requirements for the use of written and electronic communication methods
* Effective report writing
* Effective clarifying and probing skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Organization requirements for written and electronic communication methods
* Effective verbal communication methods
* Report writing
* Effective questioning techniques (clarifying and probing)
* Workplace etiquette

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:  1.1 Dealt with a range of communication/information at one time  1.2 Made constructive contributions in workplace issues  1.3 Sought workplace issues effectively  1.4 Responded to workplace issues promptly  1.5 Presented information clearly and effectively in written form  1.6 Used appropriate sources of information  1.7 Asked appropriate questions  1.8 Provided accurate information |
| 1. Resource Implications | The following resources should be provided:  2.1 Variety of Information  2.2 Communication tools  2.3 Simulated workplace |
| 1. Methods of Assessment | 3.1 Case Study  3.2 Third-party reports  3.3 Portfolio  3.4 Interview  3.5 Role Play |
| 1. Context of Assessment | Competency may be assessed individually in the actual workplace or through accredited institution |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## DEMONSTRATE NUMERACY SKILLS

**UNIT CODE:** DA/OS/PM/BC/02/4/B

**UNIT DESCRIPTION**

This unit covers the competencies required to perform numerical functions.The person who is competent in this unit shall be able to: Identify and use whole numbers and simple fractions, decimals and percentages; Identify, measure and estimate familiar quantities for work, Read and use familiar maps, plans and diagrams for work, Identify and describe common 2D and some 3D shapes for work, Construct simple tables and graphs for work using familiar data, Identify and interpret information in familiar tables, graphs and charts for work.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |  |
| --- | --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range.*** |
| 1. Identify and use whole numbers and simple fractions, decimals and percentages for work | | 1. Simple fractions, decimals and percentages identified and interpreted 2. understanding of place value by organising numbers from smallest to largest demonstrated 3. Required numerical information located and decision made on appropriate method to solve a problem 4. Limited range of calculations performed using the 4 operations 5. Links between operations described 6. Estimations made to check reasonableness of results of problem-solving process 7. Numerical information recorded, and the result of the task communicated using informal and some formal language and symbolism |
| 2. Identify, measure and estimate familiar quantities for work | 1. Measurement information in workplace tasks and texts identified and interpreted 2. Familiar units of measurement needed for tasks is identified 3. Familiar and simple amounts estimated 4. Appropriate measuring equipment selected 5. Simple measuring equipment graduated in familiar units to measure relevant quantities is used 6. Calculation done using familiar units of measurement 7. measurements and results checked against estimates 8. Results are recorded or reported 9. Results relevant to the workplace task are communicated using informal and some formal mathematical and general language |
| 3. Read and use familiar maps, plans and diagrams for work | 1. Items and places are in familiar maps, plans and diagrams 2. Common symbols and keys recognised in familiar maps, plans and diagrams 3. Understanding of direction and location demonstrated by describing the location of objects, or route to familiar places 4. Instructions to locate familiar objects or places are given and followed 5. Informal and some formal oral mathematical language and symbols are used |
| 4. Identify and describe common 2D and some 3D shapes for work | 1. Common 2D shapes and some common 3D shapes in familiar situations are identified and named 2. Common 2D shapes and designs are compared and classified 3. Informal and some formal language used to describe common two-dimensional shapes and some common three-dimensional shapes 4. Simple items used to draw or construct common 2D shapes 5. Common 3D shapes matched to their 2D sketches or nets |
| 5. Construct simple tables and graphs for work using familiar data | 1. Common types of graphs are identified and named 2. Familiar data to be collected is determined 3. A method to collect data is selected 4. A small amount of simple familiar data is collected 5. One or two variables determined from the data collected 6. Data ordered and collated 7. A table constructed, and data enter 8. Graphs are constructed using data from table 9. Results are promptly checked 10. Graph information related to work is reported or discussed using informal and some formal mathematical and general language |
| 6. Identify and interpret information in familiar tables, graphs and charts for work | 1. Simple tables are identified in familiar texts and contexts 2. Title, headings, rows and columns located in familiar tables 3. Information and data in simple tables identified and interpreted 4. Information is related to relevant workplace tasks 5. Familiar graphs and charts are identified in familiar texts and contexts 6. Title, labels, axes, scale and key from familiar graphs and charts are located 7. Information and data in familiar graphs and charts is identified and interpreted 8. Information related to relevant workplace tasks |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| * Simple measuring equipment | May include but not limited to:   * Rulers * Watches/clocks * Scales * Thermometers * AVO meter |
| * Common 2D shapes and common 3D shapes | May include but not limited to:   * Round * Square * Rectangular * Triangle * Sphere * Cylinder * Cube * Polygons * Cuboids |
| * Diagrammatical representation | May include but not limited to:   * Charts * Maps * Graphs |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Applying Fundamental operations (addition, subtraction, division, multiplication)
* Using calculator
* Using different measuring tools

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Types of common shapes
* Differentiation between two dimensional shapes / objects
* Formulae for calculating area and volume
* Types and purpose of measuring instruments
* Units of measurement and abbreviations
* Fundamental operations (addition, subtraction, division, multiplication)
* Rounding techniques
* Types of fractions
* Different types of tables and graphs
* Meaning of graphs, such as increasing, decreasing, and constant value
* Preparation of basic data, tables & graphs

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   * 1. Simple fractions, decimals and percentages are correctly identified and interpreted   2. Performed a limited range of calculations using the 4 operations   3. Performed calculations using familiar units of measurement   4. Recognised common symbols and keys in familiar maps, plans and diagrams   5. Constructed simple tables and graphs using familiar data   6. Identified and interpret information in familiar tables, graphs and charts |
| 2. Resource Implications | * 1. Calculator   2. Basic measuring instruments |
| 1. Methods of Assessment | Competency may be assessed through:  3.1 Written Test  3.2 Interview/Oral Questioning   * 1. Demonstration |
| 1. Context of Assessment | Competency may be assessed in an off the job setting |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## DEMONSTRATE DIGITAL LITERACY

**UNIT CODE:** DA/OS/PM/BC/03/4/B

**UNIT DESCRIPTION**

This unit covers the competencies required to effectively demonstrate digital literacy in a working environment. It entails identifying and using digital devices such as smartphones, tablets, laptops and desktop PCs for purposes of communication and performing work related tasks at the work place.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Identify computer software and hardware | * 1. ***Appropriate computer software*** is identified according to manufacturer’s specification   2. ***Appropriate computer hardware*** is identified according to manufacturer’s specification |
| 1. Apply security measures to data, hardware, software | * 1. ***Data security and privacy are classified*** in accordance with the technological situation   2. ***Security and control measures*** are applied in accordance with laws governing protection of ICT   3. Computer threats and crimes are detected.   4. Protection against computer crimes is undertaken in accordance with laws governing protection of ICT |
| 1. Apply computer software in solving tasks | * 1. Basic ***word processing concepts*** are applied in resolving workplace tasks   2. ***Word processing utilities*** are applied in accordance with workplace procedures   3. Data is manipulated on worksheet in accordance with office procedures |
| 1. Apply internet and email in communication at workplace | * 1. Electronic mail is applied in workplace communication in accordance with office procedures   2. Office internet functions are defined and executed in accordance with office procedures   3. ***Network configuration*** and uses are determined in accordance with office operations procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| * Appropriate computer software may include but not limited to: | * A collection of instructions that enable the user to interact with a *computer*, its hardware, or perform tasks. * Computer tools that will help *computer* users interact with the hardware in a *computer.* |
| * Appropriate computer hardware may include but not limited to: | * Collection of physical parts of a computer system. This includes the computer case, monitor, keyboard, and mouse and all the parts inside the computer case, such as the hard disk drive, motherboard, video card, |
| * Data security and privacy may include but not limited to: | * Confidentiality * Cloud computing * Confidentiality * Cyber terrorism * Integrity -but-curious data serving |
| * Security and control measures may include but not limited to: | * Countermeasures and risk reduction * Cyber threat issues * Risk management |
| * Word processing concepts may include but not limited to: | * Using a special program to create, edit, and print documents |
| * Network configuration may include but not limited to: | * Organizing and maintaining information on the components of a computer network |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Analytical skills
* Interpretation
* Typing
* Communication
* Computing (applying fundamental operations such as addition, subtraction, division and multiplication)
* Using calculator
* Basic ICT skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Input and output devices
* Central processing Unit (CPU)
* Peripherals
* Storage Media
* Software concept
* Types of concept
* Function of computer software
* Data security and privacy
* Security threats and control measures
* Computer crimes
* Detection and protection of computer crimes
* Laws governing protection of ICT
* Word processing;
* Functions and concepts of word processing.
* Documents and tables creation and manipulations
* Mail merging
* Word processing utilities
* Spread sheet;
* Meaning, formulae, function and charts, uses, layout, data manipulation and application to cell
* Networking and Internet;
* Meaning, functions and uses of networking and internet.
* Electronic mail and world wide web
* Emerging trends and issues in ICT;
* Identify and apply emerging trends and issues in ICT
* Challenges posed by emerging trends and issues

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Identified input, output, CPU and storage media devices of computers in accordance to computer specification   2. Identified concepts, types and functions of computer software according to operation manual   3. Identified and controlled security threats   4. Detected and protected computer crimes   5. Applied word processing in office tasks   6. Prepared work sheet and applied data to the cells in accordance to workplace procedures   7. Used Electronic Mail for office communication as per workplace procedure   8. Applied internet and World Wide Web for office tasks in accordance with office procedures   9. Applied laws governing protection of ICT |
| 1. Resource Implications | * 1. Smartphones   2. Tablets   3. Laptops and   4. Desktop PCs   5. Desktop computer   6. Lap top   7. Calculator   8. Internet   9. Smart phone   10. Operations Manuals |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written Test   2. Demonstration   3. Practical assignment   4. Interview/Oral Questioning   5. Demonstration |
| 1. Context of Assessment | Competency may be assessed in an off and on the job setting |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## DEMONSTRATE ENTREPRENEURIAL SKILLS

**UNIT CODE:** DA/OS/PM/BC/04/4/B

**UNIT DESCRIPTION**

This unit covers the competencies required for creating and maintaining small scale business, establishing small business customer base, managing and growing a micro/small-scale business.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Create and maintain small-scale business | 1.1 Generation and evaluation of business ideas is undertaken in accordance with the existing procedure  1.2 Competencies are matched with business opportunities in accordance with business practices.  1.3 Procedure for starting a small business is identified as per the legal requirements  1.4 SWOT/ PESTEL analysis and or industrial survey is carried out according to office procedures  1.5***Business operations***are monitored and controlled following established procedures.  1.6Quality assurance measures are implemented consistently.  1.7 Good relations are maintained with staff/workers.  1.8Policies and procedures on occupational safety and health and environmental concerns are constantly observed. |
| 2. Establish small business customer base | 2.1 Good customer relations are maintained in accordance with office procedures  2.2 New customers and markets are identified, explored and reached out to according to the marketing plan  2.3 Promotions/Incentives are offered to loyal customers in accordance with office procedures  2.4 Additional products and services are evaluated and tried in accordance with marketing strategy  2.5 Customer record is maintained in accordance with office procedures |
| 3. Manage small scale business | 3.1 Enterprise is built up and sustained through judicious control of cash flows.  3.2 ***Profitability of enterprise*** is ensured though appropriate internal controls.  3.3 Unnecessary or lower-priority expenses and purchases are avoided to ensure profitability  3.4 Basic cost-benefit analysis are undertaken in accordance with office procedures  3.5 Basic financial management are undertaken in accordance with office procedures  3.6 Basic financial accounting in undertaken in accordance with office procedures  3.7 Business ***internal controls*** are implemented in accordance with office procedure  3.8 Setting business priorities and strategies is carried out according to office procedures  3.9 Preparation and interpretation of basic financial statements is undertaken in accordance with set procedures  3.10***Preparation of business*** *plans* for small business is undertaken in accordance with business strategy  3.11 Business Social Responsibility is maintained in accordance with Standard Operations Procedures (SOP) |
| 4.Grow/ expand small scale business | 4.1 Prepared business growth strategy for small sale business in accordance with office procedures  4.2 Incorporated technology in small scale business growth in accordance with technological trends  4.3 Emerging issues and trends are considered in accordance with business growth strategy  4.4 Built audience interest in product/service according to growth strategy  4.5 Boosted cooperate communication according to business ***communication strategy*** |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| * Business Strategy include but not limited to: | * Manage wastages, environmental conservation |
| * Business Operations include but not limited to: | * Purchasing * Accounting/Bdministrative * Work production/operations/sales * Marketing |
| * Internal control includes but not limited to: | * Accounting systems * Financial statements/reports * Cash management * Human resource management |
| * Profitability of enterprise include but not limited to: | * Operating expenses lower than income |
| * Communication strategy include but not limited to: | * Blue print of exchange of information * Technology and exchange of information |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Individual marketing skills
* Using basic advertising (posters/ tarpaulins, flyers, social media,
* Basic bookkeeping/ accounting skills
* Communication skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Generation and evaluation of business ideas
* Legal requirements for starting a small business
* SWOT/ PESTEL analysis
* Occupational Safety and Health
* Public relations concepts
* Business plan
* Business financing
* Marketing strategies
* Business management and control
* Production/ operation process
* Product promotion strategies
* Market and feasibility studies
* Business ethics
* Building customer relations
* Business models and strategies
* Types and categories of businesses
* Business internal controls
* Relevant national and local legislation and regulations
* Basic quality control and assurance concepts
* Building relations with customer and employees
* Building competitive advantage of the enterprise
* Business growth strategies

**EVIDENCE GUIDE**

|  |  |  |
| --- | --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   |  | | --- | | 1. Demonstrated entrepreneurial skills 2. Demonstrate competencies to create a small-scale business 3. Demonstrated ability to conceptualize and plan a micro/small business 4. Grew customer base for the small-scale business 5. Demonstrated ability to manage/operate a micro/small-scale business 6. Demonstrated competencies to grow a micro/small-scale business | |
| 1. Resource Implications | |  | | --- | | The following resources should be provided: |   2.1 Case studies on micro/small-scale enterprises  2.2 Materials and location relevant to the proposed activity and tasks |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   |  |  | | --- | --- | | 3.1 Case studies  3.2 Oral Questioning  3.3 Portfolio  3.4 Projects |  | |
| 1. Context of Assessment | 4.1 Competency may be assessed in workplace or in a simulated workplace setting  4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## DEMONSTRATE EMPLOYABILITY SKILLS

**UNIT CODE:** DA/OS/PM/BC/05/4/B

**UNIT DESCRIPTON**

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating critical safe work habits, demonstrating workplace learning and workplace ethics.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Conduct self-management | 1. Personal vision, mission and goals are formulated based on potential and in relation to organization objectives 2. Emotions are managed as per workplace requirements 3. Individual performance is evaluated and monitored according to the agreed targets. 4. Assertiveness is developed and maintained based on the requirements of the job. 5. Accountability and responsibility for own actions are demonstrated. 6. Self-esteem and a positive self-image are developed and maintained. 7. Time management, attendance and punctuality are observed as per the organization policy. 8. Goals are managed as per the organization’s objective 9. Self-strengths and weaknesses are identified as per ***personal objectives*** 10. Critics are managed as per personal objectives 11. Demonstrate interpersonal communication 12. Information is shared as per communication structure 13. Work activity is organized with other involved personnel as per the SOPs |
| 1. Demonstrate critical safe work habits | * 1. Stress is managed in accordance with workplace procedures.   2. Punctuality and time consciousness is demonstrated in line with workplace policy.   3. Personal objectives are integrated with organization goals based on organization’s strategic plan.   4. Work priorities are set in accordance to workplace procedures.   5. ***Feedback*** on performance is collected and evaluated based on established ***team*** learning process   6. Leisure time is recognized in line with organization policy.   7. Abstinence from ***drug and substance abuse*** is observed as per workplace policy.   8. Awareness of HIV and AIDS is demonstrated in line with workplace requirements.   9. Safety consciousness is demonstrated in the workplace based on organization safety policy.   10. ***Emerging issues*** are dealt with in accordance with organization policy. |
| 1. Demonstrate workplace learning | * 1. Personal training needs are identified and assessed in line with the requirements of the job   2. Own learning is managed as per workplace policy.   3. Learning opportunities are sought and allocated based on job requirement and in line with organization policy.   4. Contribution to the learning community at the workplace is carried out.   5. ***Range of media for learning*** are identified as per the training need   6. Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job   7. Enthusiasm for ongoing learning is demonstrated   8. Time and effort is invested in learning new skills-based job requirements   9. Willingness to learn in different context is demonstrated based on available learning opportunities arising in the workplace.   10. Opportunities for performance improvement are identified proactively in area of work.   11. Awareness of personal role in workplace ***innovation*** is demonstrated. |
| 1. Demonstrate workplace ethics | * 1. Policies and guidelines are observed as per the workplace requirements   2. Self-worth and profession is exercised in line with personal goals and organizational policies   3. Code of conduct is observed as per the workplace requirements   4. Personal and professional integrity is demonstrated as per the personal goals   5. Commitment to jurisdictional laws is demonstrated as per the workplace requirements |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| * Drug and substance abuse includes but not limited to: | Commonly abused   * Alcohol * Tobacco * Miraa * Over-the-counter drugs * Cocaine * Bhang * Glue |
| * Feedback includes but not limited to: | * Verbal * Written * Informal * Formal |
| * Team includes but not limited to: | * Small work group * Staff in a section/department * Inter-agency group |
| * Personal objectives include but not limited to: | * Long term * Short term * Broad * Specific |
| * Innovation include but not limited to: | * New ideas * Original ideas * Different ideas * Methods/procedures * Processes * New tools |
| * Emerging issues include but not limited to: | * Terrorism * Social media * National cohesion * Open offices |
| * Range of media for learning include but not limited to: | * Mentoring * peer support and networking * IT and courses |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Personal hygiene practices
* Intra and Interpersonal skills
* Communication skills
* Knowledge management
* Interpersonal skills
* Critical thinking skills
* Observation skills
* Organizing skills
* Negotiation skills
* Monitoring skills
* Evaluation skills
* Record keeping skills
* Problem solving skills
* Decision Making skills
* Resource utilization skills
* Resource mobilization skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Work values and ethics
* Company policies
* Company operations, procedures and standards
* Occupational Health and safety procedures
* Fundamental rights at work
* Personal hygiene practices
* Workplace communication
* Concept of time
* Time management
* Decision making
* Types of resources
* Work planning
* Resources and allocating resources
* Organizing work
* Monitoring and evaluation
* Record keeping
* Workplace problems and how to deal with them
* Negotiation
* Assertiveness
* Team work
* Gender mainstreaming
* HIV and AIDS
* Drug and substance abuse
* Leadership
* Safe work habits
* Professional growth and development
* Technology in the workplace
* Learning
* Creativity
* Innovation
* Emerging issues
  + Social media
  + Terrorism
  + National cohesion

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   * 1. Conducted self-management   2. Demonstrated critical safe work habits   3. Demonstrated workplace learning   4. Demonstrated workplace ethics |
| 1. Resource Implications | |  | | --- | | The following resources should be provided: |  * 1. Case studies/scenarios |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Oral Interview 2. Observation 3. Third Party Reports 4. Written |
| 1. Context of Assessment | * 1. Competency may be assessed in workplace or in a simulated workplace setting   2. Assessment shall be observed while tasks are being undertaken whether individually or in-group |
| 1. Guidance information for assessment | | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## DEMONSTRATE ENVIRONMENTAL LITERACY

**UNIT CODE:** DA/OS/PM/BC/06/4/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to follow procedures for environmental hazard control, follow procedures for environmental pollution control, comply with workplace sustainable resource use and evaluate current practices in relation to resource usage.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Control environmental hazard | * 1. ***Storage methods*** for environmentally hazardous materials are strictly followed according to environmental regulations and OSHS.   2. ***Disposal methods*** of hazardous wastes are followed always according to environmental regulations and OSHS.   3. ***PPE*** is used according to OSHS. |
| 1. Control environmental Pollution control | * 1. Environmental pollution ***control measures*** are compiled following standard protocol.   2. Procedures for solid waste management are observed according Environmental Management and Coordination Act 1999   3. Methods for minimizing ***noise pollution*** complied following environmental regulations. |
| 1. Demonstrate sustainable resource use | * 1. Methods for minimizing wastage are complied with.   2. Waste management procedures are employed following principles of 3Rs (Reduce, Reuse, Recycle)   3. Methods for economizing or reducing resource consumption are practiced. |
| 1. Evaluate current practices in relation to resource usage | * 1. Information on resource efficiency ***systems and procedures*** are collected and provided to the work group where appropriate.   2. Current resource usage is measured and recorded by members of the work group.   3. Current purchasing strategies are analyzed and recorded according to industry procedures.   4. Current work processes to access information and data is analyzed following enterprise protocol. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| * PPE may include but are not limited to: | * Masks * Gloves * Goggles * Safety hat * Overall * Hearing protector * Safety boots |
| * Environmental pollution control measures may include but are not limited to: | * Methods for minimizing or stopping spread and ingestion of airborne particles * Methods for minimizing or stopping spread and inhaling gases and fumes * Methods for minimizing or stopping spread and ingestion of liquid wastes |
| * Waste management Procedures may include but are not limited to: | * Sorting * Storing of items * Recycling of items * Disposal of items * Handling * Transport |
| * Resources may include but are not limited to: | * Electric * Water * Fuel * Telecommunications * Supplies * Materials |
| * Workplace environmental hazards may include but are not limited to: | * Biological hazards * Chemical and dust hazards * Physical hazards |
| * Organizational systems and procedures may include but are not limited to: | * Supply chain, procurement and purchasing * Quality assurance * Making recommendations and seeking approvals |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Following storage methods of environmentally hazardous materials
* Following disposal methods of hazardous wastes
* Using PPE
* Practicing OSHS
* Complying environmental pollution control
* Observing solid waste management
* Complying methods of minimizing noise Pollution
* Complying methods of minimizing wastage
* Employing waste management procedures
* Economizing resource consumption
* Listing of resources used
* Measuring current usage of resources
* Identifying and reporting workplace environmental hazards
* Conveying all environmental issues
* Following environmental regulations
* Identifying environmental regulations
* Assessing procedures for assessing compliance
* Collecting information on environmental and resource efficiency systems and procedures, and Providing information to the work group
* Measuring and recording current resource usage
* Analysing and recording current purchasing strategies.
* Analysing current work processes to access information and data and Assisting identifying areas for improvement

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Storage methods of environmentally hazardous materials
* Disposal methods of hazardous wastes
* Usage of PPE Environmental regulations
* OSHS
* Types of pollution
* Environmental pollution control measures
* Different solid wastes
* Solid waste management
* Different noise pollution
* Methods of minimizing noise pollution
* Solid Waste Act
* Methods of minimizing wastage
* Waste management procedures
* Economizing of resource consumption
* Principle of 3Rs
* Types of resources
* Techniques in measuring current usage of resources
* Calculating current usage of resources
* Types of workplace environmental hazards
* Environmental regulations
* Environmental regulations applying to the enterprise.
* Procedures for assessing compliance with environmental regulations.
* Collection of information on environmental and resource efficiency systems and procedures,
* Measurement and recording of current resource usage
* Analysis and recording of current purchasing strategies.
* Analysis current work processes to access information and data Analysis of data and information
* Identification of areas for improvement

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   1. Controlled environmental hazard 2. Controlled environmental pollution 3. Demonstrated sustainable resource use 4. Evaluated current practices in relation to resource usage |
| 1. Resource Implications | The following resources should be provided:   * 1. Workplace with storage facilities   2. Tools, materials and equipment relevant to the tasks (ex. Cleaning tools, cleaning materials, trash bags, etc.)   3. PPE   4. Manuals and references   5. Legislation, policies, procedures, protocols and local ordinances relating to environmental protection   6. Case studies/scenarios relating to environmental Protection |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Demonstration 2. Oral questioning 3. Written examination 4. Third Party Reports 5. Portfolio (citations/Bwards from GOs and NGOs, certificate of training – local and abroad) 6. Simulations and role-plays |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these as well as in work placement (internship). Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## DEMONSTRATE OCUPATIONAL SAFETY AND HEALTH PRACTICES

**UNIT CODE:** DA/OS/PM/BC/07/4/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to practice safety and health, and comply with OSH requirements relevant to work

**ELEMENTS AND PERFORMANCE CRITERIA**

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| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Observe workplace procedures for hazards and risk prevention | 1.1 Arrangement of work area and items in accordance with  Company housekeeping procedures is followed  1.2 Work standards and procedures are followed  1.3 ***Prevention and control measures***, including use of ***safety***  ***gears/PPE*** are applied  1.4 Standards and procedures for ***incidents and emergencies*** are studied and applied, as needed |
| 1. Participate in arrangements for workplace safety and health maintenance | 2.1 Orientations on ***OSH requirements/regulations*** of tasks is participated  2.2 Feedback on health, safety, and security concerns are provided to appropriate personnel as required in a sufficiently detailed manner.  2.3 Workplace procedures for reporting hazards, incidents, injuries and sickness are practiced  2.4 OSH requirements/ regulations and workplace safety and hazard control procedures are reviewed, and compliance reported to appropriate personnel, as needed  2.5 Needed ***OSH-related trainings*** are identified and proposed to appropriate personnel |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| * Prevention and control measures may include but are not limited to: | * Eliminate the hazard (i.e., get rid of the dangerous machine * Isolate the hazard (i.e. keep the machine in a closed room and operate it remotely; barricade an unsafe area off) * Substitute the hazard with a safer alternative (i.e., replace the machine with a safer one) * Use administrative controls to reduce the risk (i.e. give * trainings on how to use equipment safely; OSH-related * topics, issue warning signages, rotation/shifting work * schedule) * Use engineering controls to reduce the risk (i.e. use safety guards to machine) * Use personal protective equipment * Safety, Health and Work Environment Evaluation * Periodic and/or special medical examinations of workers |
| * Safety gears /PPE (Personal Protective Equipment’s) may include but are not limited to: | * Arm/Hand guard, gloves * Eye protection (goggles, shield) * Hearing protection (ear muffs, ear plugs) * Hair Net/cap/bonnet * Hard hat * Face protection (mask, shield) * Apron/Gown/coverall/jump suit * Anti-static suits * High-visibility reflective vest |
| * Incidents and emergencies may include but are not limited to: | * Chemical spills * Equipment/vehicle accidents * Explosion * Fire * Gas leak * Injury to personnel * Structural collapse * Toxic and/or flammable vapors emission. |
| * OSH requirements / regulations may include but are not limited to: | * Building code * Permit to Operate |
| * OSH-related trainings may include but are not limited to: | * Safety Orientations relevant to tasks * Safe and Correct Operation of Tools and Equipment * Health Orientations/trainings (Healthy Lifestyle, Prevention of drug/Blcohol dependence, violence in the workplace, work-stress) * Prevention and Control of OSH Hazards in the workplace * Chemical Handling * Safety Trainings (Fire Safety, Construction Safety, Confined Space) * Prevention and Control of Work-related Injuries and Illness * Basic First-aid Trainings * Emergency Response Trainings * Trainings on use of fire-extinguisher |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication Skills
* Knowledge management
* Collaborating skills
* Interpersonal Skills
* Troubleshooting skills
* Critical thinking Skills
* Observation Skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* General OSH principles and legislations
* Principles of good housekeeping (5S)
* Company/workplace policies/ guidelines
* Standards and safety requirements of work process and procedures
* Standard Workplace emergency plan and procedures
* Safety and health requirements of tasks
* Workplace guidelines on providing feedback on OSH and security concerns
* OSH regulations
* Hazard control procedures
* OSH trainings relevant to work

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:  1.1 Follows work and housekeeping procedures, and complies with its requirements  1.2 Follows work standards and procedures  1.3 Applies OSH preventive and control measures, including emergency plan, standards and procedures  1.4 Participates in orientations on OSH requirements of tasks  1.5 Provides feedback on health, safety, and security concerns in a sufficiently detailed manner.  1.6 Practices workplace procedures for reporting hazards, incidents, injuries and sickness  1.7 Reviews and reports compliance to workplace OSH regulations and hazard control procedures  1.8 Identifies and proposes OSH trainings relevant to work |
| 1. Resource Implications | The following resources should be provided:  2.1 Facilities, materials tools and equipment necessary for the activity |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Observation/Demonstration with oral questioning 2. Third party report 3. Written exam |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# CORE UNITS OF COMPETENCY

## CHILL RAW MILK

**UNIT CODE:** DA/OS/PM/CR/01/4/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to operate milk chilling equipment. It involves applying food safety measures to chill raw milk, preparing to bulk and chill raw milk, bulking and chill raw milk and completing raw milk chilling .

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Apply food safety measures to chill raw milk | 1. Hazard identification is conducted based on ***hazard type(s)*** and source(s) 2. Hazard control or treatment is applied based on prerequisite programmes, operational prerequisite programmes and HACCP plan. 3. Risk is documented as per internal communication policies |
| 1. Prepare to bulk and chill raw milk | 1. ***Materials and equipment*** for chilling are assembled, verified, calibrated and prepared in accordance with theFood Drugs and Chemical Substances Act (Cap 254), ***milk processing manual,*** code of hygienic practice for milk and milk products and good manufacturing practices 2. Tested milk is weighed, recorded and ***bulked*** as per work place procedures and code of hygienic practice for milk and milk products |
| 1. Bulk and chill raw milk | 1. ***Cooling parameters*** are set as per themilk processing manual and the code of hygienic practice for milk and milk products 2. Cooling process is run as per operator’s manual and code of hygienic practice for milk and milk products 3. Critical chilling temperature is attained in accordance withmilk processing manual |
| 1. Complete raw milk chilling | 1. Chilling and testing equipment are cleaned in accordance withmilk processing manual, GMP and the code of hygienic practice for milk and milk products 2. Chilled milk records are prepared based on work place procedures and the code of hygienic practice for milk and milk products 3. Detected faults are reported in accordance withmilk processing manual and work place procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Hazard type(s) may include but not limited to: | Chemical   * Pesticides * Veterinary drugs * Herbicides * Fungicides * Paint * Preservatives * Detergents * Disinfectants * Mycotoxins * Heavy metals   Biological   * Bacteria * Viruses * Fungi * Protozoa * Somatic cells   Physical   * Broken metal * Broken glass * Wires * Sticks * Insects |
| 1. Materials and equipment may include but not limited to | Materials   * Raw milk   Equipment   * Bulking containers * Chilling tanks * Sieves * Weighing balances |
| 1. Milk processing manual may include but not limited to | * DTI-IFAD (SDCP) * FAO-DTI * DTI-USAID |
| 1. Cooling parameters may include but not limited to: | * Temperature * Temperature maintenance * Time * Agitation |
| 1. Bulked may includes but not limited to | Pooling milk into:   * Tanks * Containers * Vats * Silos |
| 1. Work place procedures may include but not limited to | Guidelines on;   * Human resource development * Record keeping * Environment safety * Resource allocation * Procurement policy * Labour laws and or regulations |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Weighing
* Milk grading
* Milk handling
* Trouble shooting
* Communication
* Operation of chilling equipment

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Milk grading
* Causes of milk spoilage
* Cooling methods and operations
* Good manufacturing practices
* Food safety principles
* Code of hygienic practice
* Cleaning methods
* Record keeping

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   1. Applied food safety measures to chill raw milk 2. Chilled milk to critical temperature 3. Cleaned chilling and testing equipment and apparatus 4. Adhered to occupational safety and health procedures as per OS&H Act and work place procedures 5. Documented raw milk chilling and food safety records |
| 1. Resource Implications | The following resources must be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   1. Observation 2. Oral questioning 3. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of both. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

## PROCESS FLUID MILK PRODUCTS

**UNIT CODE:** DA/OS/PM/CR/02/4/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to operate fluid milk processing equipment. It involves applying food safety measures while participating in fluid milk products, preparing to process fluid milk products, processing fluid milk products and completing fluid milk products processing

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Apply food safety measures to process fluid milk products | 1. Hazard identification is conducted based on ***type (s)*** and source (s) 2. Hazard control or treatment is applied based on prerequisite programmes, operational prerequisite programmes and HACCP plan. 3. Risk is documented as per internal communication policies |
| 1. Prepare to process fluid milk products | * 1. ***Materials and equipment*** required are assembled, verified, calibrated and prepared based on type of fluid milk product, Food Drugs and Chemical Substances Act (Cap 254) and the code of hygienic practice for milk and milk products |
| 1. Process fluid milk products | * 1. Fluid milk products are processed and ***process controls monitored*** based on type of product in accordance with the milk processing manual, the code of hygienic practice for milk and milk products and GMP   2. Fluid milk products are packaged as per milk processing manual, GMP, the code of hygienic practice for milk and milk products and the ***Respective standards***   3. Fluid milk products are stored in accordance with the milk processing manual, GMP and the code of hygienic practice for milk and milk products |
| 1. Complete fluid milk products processing | 1. Processing equipment are cleaned according to the milk processing manual, GMP and the code of hygienic practice for milk and milk products 2. Dairy waste is segregated and disposed with due regard to environment protection and management regulations, GMP and the code of hygienic practice for milk and milk products 3. Fluid milk products processing is recorded as per work place policy 4. Detected faults are reported in accordance with milk processing manual and work place procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Hazard type(s) include but not limited to: | Chemical   * Pesticides * Veterinary drugs * Herbicides * Fungicides * Paint * Preservatives * Detergents * Disinfectants * Mycotoxins * Heavy metals   Biological   * Bacteria * Viruses * Fungi * Protozoa * Somatic cells   Physical   * Broken metal * Broken glass * Wires * Sticks * Insects |
| 1. Fluid milk products includes but not limited to | * Fresh milk * Extended shelf life * Ultra-Heat Treated (UHT) |
| 1. Materials and equipment include but not limited to | Materials   * Raw milk * Flavours * Sweeteners * Packaging materials   Equipment   * Sieves * Cream separator * Homogenizer * Heat exchangers |
| 1. Milk processing manual includes but not limited to | * DTI-IFAD(SDCP) * FAO-DTI * DTI-USAID |
| 1. Process controls include but not limited to: | * Holding Time and temperature combination * Flow diversion valve * Clarification * Homogenization * Deodorization * Bactofugation |
| 1. Environment protection and management regulations includes but not limited to | * Environmental Management and Coordination Act * Public Health Act * Food Drugs and Chemical Substances Act (Cap 254) |
| 1. Work place policy 2. includes but not limited to | Guidelines on:   * Human resource development * Record keeping * Environment safety * Resource allocation * Procurement policy * Labour laws/regulations |
| 1. Respective standards include but not limited to: | * Test methods * Sampling methods * Codes of practice * Product standards |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Assembling and operation of milk processing equipment
* Measuring
* Communication
* Trouble shooting

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Causes of milk spoilage
* Operation of Fluid milk processing equipment.
* Food safety principles
* Code of hygienic practice
* Machine operation
* Processing steps of pasteurized milk, UHT and extended shelf life milk
* Cleaning of processing equipment
* Dairy waste disposal
* Good manufacturing practices (GMP)
* Records keeping

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Applied food safety measures to process fluid milk products   2. Assembled correct equipment and materials for processing of fluid milk products   3. Processed safe fluid milk products   4. Stored fluid milk products in appropriate packaging materials and conditions   5. Cleaned milk processing, testing equipment and apparatus   6. Disposed wastes   7. Adhered to occupational safety and health procedures as per OS&H Act and work place procedures   8. Documented fluid products processing and food safety records |
| 1. Resource Implications for competence certification | The following resources must be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Third party report   4. Product laboratory tests |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of both. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

**PROCESS FERMENTED MILK PRODUCTS**

**UNIT CODE:** DA/OS/PM/CR/03/4/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to process fermented milk products. It involves applying food safety measures to process fermented milk products, preparing to process fermented milk products, processing fermented milk products and completing fermented milk products processing

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Apply food safety measures to process fermented milk products | 1. Hazard identification is conducted based on ***type (s)*** and source (s) 2. Hazard control or treatment is applied based on prerequisite programmes, operational prerequisite programmes and HACCP plan. 3. Risk is documented as per communication policies |
| 1. Prepare to process fermented milk products | 1. ***Materials and equipment*** required are assembled, verified, calibrated and prepared based on type of fermented milk product, the code of hygienic practice for milk and milk products and the Food, Drugs and Chemical Substances Act (Cap 254) |
| 1. Process fermented milk products | 1. Fermented milk products are processed and ***process controls monitored*** based on type of product in accordance with the milk processing manual, the code of hygienic practice for milk and milk products, GMP 2. Fermented milk products are packaged as per ***milk processing manual,*** GMPand the code of hygienic practice for milk and milk products and the ***respective standards*** 3. Fermented milk products are stored in accordance with the milk processing manual, GMP and the code of hygienic practice for milk and milk products |
| 1. Complete fermented milk products processing | 1. Processing equipment are cleaned according to the milk processing manual, GMP, the Food, Drugs and Chemical Substances Act (Cap 254) and the code of hygienic practice for milk and milk products 2. Dairy waste is segregated and disposed with due regard to ***environment protection and management regulations,*** GMP and the code of hygienic practice for milk and milk products 3. Fermented milk products records are prepared as per ***work place policy*** 4. Detected faults are reported in accordance withmilk processing manual and work place procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Hazards type(s) may include but not limited to: | Chemical   * Pesticides * Veterinary drugs * Herbicides * Fungicides * Paint * Preservatives * Detergents * Disinfectants * Mycotoxins * Heavy metals   Biological   * Bacteria * Viruses * Fungi * Protozoa * Somatic cells   Physical   * Broken metal * Broken glass * Wires * Sticks * Insects |
| 1. Fermented milk products may include but not limited to | * Yoghurt * Cultured buttermilk * Probiotics milk |
| 1. Materials and equipment may include but not limited to | Materials   * Raw milk * Flavours and colours * Starter cultures * Stabilizers and emulsifiers * Packaging materials   Equipment   * Cream separator * Homogenizer * Heat exchangers * Fermentation tanks * Sieves |
| 1. Process controls may include but not limited to: | * Holding Time and Temperature combination * Flow diversion valve * Clarification * Homogenization * Bactofugation |
| 1. Milk processing manual may includes but not limited to | * DTI-IFAD(SDCP) * FAO-DTI * DTI-USAID |
| 1. Environment protection and management regulations may includes but not limited to | * Environmental Management and Coordination Act * Public Health Act |
| 1. Work place policy mayIncludes but not limited to | * Human resource development * Record keeping * Environment safety * Resource allocation * Procurement policy * Labour laws/regulations |
| 1. The respective standards may include but not limited to: | * Test methods * Sampling methods * Codes of practice * Product standards |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Assembling and operation of milk processing equipment
* Measuring
* Communication
* Equipment cleaning and sanitization
* Trouble shooting

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Causes of milk spoilage
* Operation of fermented milk products processing equipment
* Steps in yoghurt making
* Steps in cultured milk production.
* Cleaning of processing equipments
* Dairy waste disposal
* Milk inoculation
* Good manufacturing practices (GMP)
* Food safety principles
* Code of hygienic practice
* Record keeping

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Applied food safety measures to process fermented milk products   2. Assembled correct equipment and materials for processing of fermented milk products   3. Processed safe fermented milk products   4. Stored fermented milk products in appropriate packaging materials and conditions   5. Cleaned processing and testing equipment and apparatus   6. Disposed wastes   7. Adhered to occupational safety and health procedures as per OS&H Act and work place procedures   8. Documented fermented milk product processing and food safety records |
| 1. Resource Implications for competence certification | The following resources must be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Third party report   4. Product laboratory tests |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of both. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

**PROCESS FAT BASED MILK PRODUCTS**

**UNIT CODE:** DA/OS/PM/CR/04/4/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to process fat based milk products. It involves applying food safety measures to process fat based milk products, preparing to process fat based milk products, processing fat-based milk products and completing processing of fat-based milk products.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Apply food safety measures to process fat based milk products | 1. ***Hazard*** identification is conducted based on ***type (s)*** and source (s) 2. Hazard control or treatment is applied based on prerequisite programmes, operational prerequisite programmes and HACCP plan. 3. Risk is documented as per internal communication policies |
| 1. Prepare to process fat based milk products | 1. ***Materials and equipment*** required are assembled, verified, calibrated and prepared based on type of fat-based milk products, the code of hygienic practice for milk and milk products, GMP, and the Food, Drugs and Chemical Substances Act (Cap 254) |
| 1. Process fat-based milk products | 1. Fat based milk products are processed and ***process controls*** monitored based on type of product in accordance with the ***milk processing manual, GMP, the*** code of hygienic practice for milk and milk products and the food safety risk assessment 2. Fat based milk products are packaged as per milk processing manual, GMP and the code of hygienic practice for milk and milk products and the ***respective standards*** 3. Fat based milk products are stored in accordance with the milk processing manual, GMP and the code of hygienic practice for milk and milk products |
| 1. Complete processing of fat-based milk products | 1. Processing equipment are cleaned according to the milk processing manual, GMP and the code of hygienic practice for milk and milk products 2. Dairy waste is segregated and disposed with due regard to ***environment protection and management regulations,*** GMP, and the code of hygienic practice for milk and milk products 3. Fat based milk products are prepared as per ***work place policy*** and the code of hygienic practice for milk and milk products 4. Detected faults are reported in accordance withmilk processing manual and work place procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Hazards type(s) may include but not limited to: | Chemical   * Pesticides * Veterinary drugs * Herbicides * Fungicides * Paint * Preservatives * Detergents * Disinfectants * Mycotoxins * Heavy metals   Biological   * Bacteria * Viruses * Fungi * Protozoa * Somatic cells   Physical   * Broken metal * Broken glass * Wires * Sticks * Insects |
| 1. Fat based milk products may includes but not limited to | * Cream * Butter * Anhydrous milk fat / ghee * Ice cream |
| 1. Materials and equipment may include but not limited to | Materials   * Raw milk * Milk powder * Cream * Sweeteners * Flavours * Food colour * Salt * Stabilizers * Emulsifiers * Testing reagents * Packaging material * Cleaning material   Equipment   * Cream separator * Ice cream freezer * Butter churn * Heat exchangers |
| 1. Milk processing manual may includes but not limited to | * DTI-IFAD(SDCP) * FAO-DTI * DTI-USAID |
| 1. Process controls may include but not limited to: | * Holding Time and Temperature combination * Flow diversion valve * Clarification * Deodorization * Homogenization * Bactofugation |
| 1. Environment protection and management regulations may includes but not limited to | * Environmental Management and Coordination Act * Public Health Act |
| 1. Work place policymay Includes but not limited to | Guidelines on;   * Human resource development * Record keeping * Environment safety * Resource allocation * Procurement policy * Labour laws/regulations |
| 1. The respective standards may include but not limited to | * Test methods * Codes of practice (s) * Product standards |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Assembling and operation of milk processing equipment
* Measuring
* Communication
* Cleaning and sanitization
* Trouble shooting

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Steps in cream production
* Steps in butter making
* Steps in ghee making
* Steps in ice cream making
* Machine operation
* Good manufacturing practices
* Food safety principles
* Code of hygienic practice
* Cleaning of processing equipment
* Dairy waste disposal.
* Records keeping

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Applied food safety measures to process fat based milk products   2. Assembled correct equipment and materials for processing of fat-based milk products   3. Processed safe fat-based milk products   4. Stored fat-based milk products in appropriate packaging materials and conditions   5. Cleaned processing and testing equipment and apparatus   6. Disposed wastes as per recommended procedures   7. Adhered to occupational safety and health procedures as per OS&H Act and work place procedures   8. Documented fat based milk products processing and food safety records |
| 1. Resource Implications for competence certification | The following resources must be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Third party report   4. Product laboratory tests |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of both. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

**PRODUCE RIPENED AND UNRIPENED CHEESE**

**UNIT CODE:** DA/OS/PM/CR/05/4/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to produce ripened and un-ripened cheese. It involves 1. Applying food safety measures to produce ripened and unripened cheese, preparing to produce cheese, producing cheese and complete cheese making process

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Apply food safety measures to produce ripened and unripened cheese | 1. Hazard identification is conducted based on ***hazard*** ***type(s)*** and source(s) 2. Hazard control or treatment is applied based on prerequisite programmes, operational prerequisite programmes and HACCP plan. 3. Risk is documented as per established communication policies |
| 1. Prepare to produce cheese | 1. ***Materials and equipment*** required are assembled and prepared in accordance with the ***milk processing manual,*** good manufacturing practices (GMP), the code of hygienic practice for milk and milk products, the food safety risk assessment and the Food, Drugs and Chemical Substances Act (Cap 254) |
| 1. Produce cheese | 1. ***Cheese varieties*** are produced and ***process controls*** monitored based on variety in accordance with the milk processing manual, GMP, the code of hygienic practice for milk and milk products and the food safety risk assessment 2. Cheese is packaged as per milk processing manual, GMP, the code of hygienic practice for milk and milk products and the ***respective standards*** 3. Cheese is stored in accordance with the ***milk processing manual,*** GMPand the code of hygienic practice for milk and milk products |
| 1. Complete cheese making process | 1. Processing equipment are cleaned according to the milk processing manual, GMP and the code of hygienic practice for milk and milk products 2. Dairy waste is segregated and disposed with due regard to ***environment protection and management regulations,*** GMP and the code of hygienic practice for milk and milk products 3. Cheese processing records are prepared as per ***work place policy*** 4. Detected faults are reported in accordance withmilk processing manual and work place procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Hazard type(s) may include but not limited to: | Chemical   * Pesticides * Veterinary drugs * Herbicides * Fungicides * Paint * Preservatives * Detergents * Disinfectants * Mycotoxins * Heavy metals   Biological   * Bacteria * Viruses * Fungi * Protozoa * Somatic cells   Physical   * Broken metal * Broken glass * Wires * Sticks * Insects |
| 1. Cheese varieties may includes but not limited to | Ripened   * Gouda * Cheddar   Unripened   * Cottage * Mozzarella * Queso Blanco * Cream cheese * Feta * Processed cheese |
| 1. Materials and equipment may include but not limited to | Materials   * Raw milk * Starter culture * Salts * Flavours   Equipment   * Cheese vat * Cheese press * Cheese knife * Cheese cloth * Sieve * Cheese mold * Stirrer |
| 1. Process controls may include but not limited to: | * Holding Time and temperature combination * Flow diversion valve * Clarification * Deodorization * Homogenization * Bactofugation |
| 1. Milk processing manual may includes but not limited to | A guide on milk and milk products processing procedures by:   * DTI-IFAD(SDCP) * FAO-DTI * DTI-USAID |
| 1. Respective standards may include but not limited to: | * Test methods * Sampling methods * Codes of practice * Product standards |
| 1. Work place procedures may include but not limited to | Guidelines on:   * Human resource development * Record keeping * Environment safety * Resource allocation * Procurement policy * Labour laws/regulations |
| 1. Environment protection and management regulations may includes but not limited to | * Environmental Management and Coordination Act * Public Health Act |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Assembling and operation of cheese processing and testing equipment
* Measuring
* Communication
* Cleaning and sanitization
* Trouble shooting
* Milk coagulation

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Causes of milk spoilage
* Hygienic milk handling
* Steps in cheese making
* Dairy equipment cleaning procedures
* Good manufacturing practices
* Food safety principles
* Code of hygienic practice
* Machine Operations
* Dairy waste disposal
* Record keeping.

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Applied food safety measures to produce ripened and unripened cheese   2. Assembled correct equipment and materials for producing cheese   3. Produced safe cheese varieties   4. Stored cheese in appropriate packaging materials and   conditions   * 1. Cleaned cheese making and quality testing equipment and apparatus   2. Disposed cheese production wastes as per recommended procedures   3. Adhered to occupational safety and health procedures as per OS&H Act and work place procedures   4. Documented ripened and un-ripened cheese production and food safety records |
| 1. Resource Implications for competence certification | The following resources must be provided:  2.1 Access to relevant workplace where assessment can take place  2.2 Appropriately simulated environment where assessment can take place  2.3 Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Third party report   4. Product laboratory tests |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |