

## APPLY FUNDAMENTALS OF DAIRY TECHNOLOGY

ISCED UNIT CODE: 0721 451 05A

TVET CDACC UNIT CODE: DA/OS/PM/CC/01/5/MA

### UNIT DESCRIPTION:

This unit specifies the competencies required by Dairy Processing Attendant level 4 to apply fundamentals of dairy technology. It involves application milk composition and dairy microbiology knowledge and dairy equipment operations principles.

### ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace functions	These are assessable statements which specify the required level of performance for each of the elements <i>(Bold and italicized terms are elaborated in the range)</i>
1. Apply milk composition knowledge	1.1 <b><i>Milk constituents</i></b> are tested as per dairy processing manual 1.2 <b><i>Milk physical properties</i></b> are applied as per work instructional manual 1.3 <b><i>Milk chemical properties</i></b> are applied as per work instruction manual
2. Apply dairy microbiology knowledge	2.1 Microbiological principles are applied in dairy processing as per Kenya Standard (KS) 1552: 2016 Code of hygienic practice for milk and milk products. 2.2 <b><i>Microbiology test apparatus</i></b> are used as per good laboratory practices. 2.3 Dairy microbial specimens are collected as per good laboratory practices. 2.4 Microbial findings are documented as per work instruction manual. 2.5 Microbial wastes are managed as per KS 1552: 2016 Code of hygienic practice for milk and milk products. 2.6 Microbiology apparatus is cleaned and maintained as per good laboratory practices.
2. Apply dairy equipment operational principles	3.1 <b><i>Dairy equipment and machinery</i></b> are assembled as per work requirement 3.2 Dairy equipment and machinery are operated as per equipment and machinery operation manual 3.16 <b><i>Dairy utilities</i></b> are utilized as per work requirement.

## 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.

RANGE	VARIABLE
1. Milk constituents may include but not limited to:	<ul style="list-style-type: none"><li>• Carbohydrates</li><li>• Proteins</li><li>• Vitamins</li><li>• Minerals</li><li>• Butterfat</li><li>• Water</li></ul>
2. Milk physical properties may include but not limited to:	<ul style="list-style-type: none"><li>• Colour</li><li>• Taste</li><li>• Density</li><li>• Viscosity</li><li>• Freezing point</li><li>• Ph</li><li>• Enzymes</li><li>• Emulsions</li><li>• Heat sensitivity.</li></ul>
3. Milk chemical properties may include but not limited to:	
4. Microbiology test apparatus may include but not limited to:	<ul style="list-style-type: none"><li>• Microscope</li><li>• Incubators</li><li>• Autoclaves</li><li>• Heat exchanger</li><li>• Vats</li><li>• Tanks</li><li>• Cans</li><li>• pumps</li><li>• Steam system</li><li>• water</li></ul>
5. Dairy equipment and machinery may include but not limited to:	

6. Dairy utilities may include but not limited to:	<ul style="list-style-type: none"> <li>• Waste water system</li> <li>• Refrigeration.</li> <li>• Pneumatic system.</li> </ul>
--	---

## REQUIRED SKILLS AND KNOWLEDGE

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

### Required knowledge

The individual needs to demonstrate knowledge of:

- Milk composition.
- Microorganisms
- Microscopy procedures
- Processing Techniques
- Quality Control measures
- Packaging and Storage
- Hygiene

### Required Skills

The individual needs to demonstrate the following skills:

- Communication.
- Testing skills.
- Time management.
- Data collection.
- Numeracy.
- Observation.
- Digital literacy

## 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	<p>Assessment requires evidence that the candidate</p> <p>1.1 Tested Milk constituents as per dairy processing manual</p> <p>1.2 Applied Microbiological principles in dairy processing as per Kenya Standard (KS) 1552: 2016 Code of hygienic practice for milk and milk products.</p>
-----------------------------------	---

	<p>1.3 Operated dairy equipment and machinery as per equipment and machinery operation manual</p> <p>1.4 Utilized dairy utilities as per work requirement.</p>
2. Resource implication	<p>The following resources should be provided</p> <p>2.1 Access to relevant workplace where assessment can take place</p> <p>2.2 Appropriately simulated environment where assessment can take place</p> <p>2.3 Materials relevant to the proposed assessment activity or tasks</p>
3. Method of assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> <li>• Practical</li> <li>• Oral questioning</li> <li>• Portfolio of evidence</li> <li>• Third party report</li> <li>• Written tests</li> </ul>
4. Context of assessment	<p>4.1 Competency elements must be assessed in a safe working environment</p> <p>4.2 Assessment may be conducted in a workplace or simulated environment</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended</p>