

## PROCESS FERMENTED MILK PRODUCTS.

ISCED UNIT CODE: 0721 351 03A

TVET CDACC UNIT CODE: DA/OS/PM/CR/03/4/MA

### UNIT DESCRIPTION

This unit specifies the competencies required by a Dairy Plant Technician level 5 to process Fermented Milk Products. It involves producing Yoghurt, Cultured and Kefir milk products.

### 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<br><i>(Bold and italicized terms are elaborated in the range)</i>   |
| 1. Produce yoghurt product  | <ul style="list-style-type: none"><li>1.1 Raw milk sample is collected as per KS ISO 707:2008 Sampling of milk and milk products</li><li>1.2 Raw milk quality analysis is carried out in accordance with KS ISO/TC 34/SC 5 milk and milk products</li><li>1.3 Yoghurt processing materials and equipment are assembled based on work requirement.</li><li>1.4 Yoghurt product making is carried out in accordance with Kenya Standard East Africa Standard (KS EAS) 33-2006, Yoghurt — Specification</li><li>1.5 AI is applied in Yoghurt product making as per work place procedure.</li><li>1.6 Yoghurt product sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products</li><li>1.7 Yoghurt product quality is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products</li><li>1.8 Yoghurt product is packaged in accordance with Kenya East Africa Standard (K EAS) 33-2006, Yoghurt — Specification.</li><li>1.9 Yoghurt product is sustainably packaged in accordance to work place procedure</li><li>1.10 Yoghurt product is stored in accordance with Kenya East Africa Standard (K EAS) 33-2006, Yoghurt — Specification</li><li>1.11 Yoghurt product processing equipment is cleaned as per code of hygienic practice for milk and milk products</li><li>1.12 Dairy waste is disposed as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products Sustainable waste disposal</li><li>1.13 Dairy waste is sustainably disposed as per work place procedure.</li><li>1.14 Yoghurt product production records are updated as per work instruction manual</li></ul> |

|   |   |
|---|---|
| <p>2. Produce cultured milk product</p> | <p>2.1 Raw milk sample is collected as per Kenya Standard KS ISO 707:2008 Sampling of milk and milk products</p> <p>2.2 <b>Raw milk quality analysis</b> is carried out in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>2.3 <b>Cultured milk product processing materials and equipment</b> are assembled based on work requirement.</p> <p>2.4 Cultured milk product making is carried out in accordance with Kenya East Africa Standard (K EAS) 1008:2021 Fermented (cultured) milk — Specification.</p> <p>2.5 AI is applied in cultured milk product making as per work place procedure.</p> <p>2.6 Cultured milk sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>2.7 Cultured milk quality is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>2.8 Cultured milk product is packaged in accordance with Kenya East Africa Standard (K EAS) 1008:2021 Fermented (cultured) milk — Specification</p> <p>2.9 Cultured milk product is sustainably packaged as per work place procedure.</p> <p>2.10 Cultured milk product is stored in accordance with Kenya Standard East Africa Standard (KS EAS) 1008:2021 Fermented (cultured) milk — Specification</p> <p>2.11 Cultured milk product processing equipment is cleaned as per code of hygienic practice for milk and milk products</p> <p>2.12 Dairy waste is disposed as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products</p> <p>2.13 Dairy waste is sustainably disposed as per work place procedure.</p> <p>2.14 Cultured milk product production records are updated as per work place manual.</p> |
| <p>3. Produce kefir product</p>         | <p>3.1 Raw milk sample is collected as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>3.2 <b>Raw milk quality analysis</b> is carried out in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>3.3 <b>Kefir product processing materials and equipment</b> are assembled based on work requirement.</p> <p>3.4 Kefir milk product making is carried out in accordance with East Africa Standard (EAS) 1008:2021 Fermented (cultured) milk — Specification.</p> <p>3.5 AI is applied in Kefir milk product making as per work place procedures</p> <p>3.6 Kefir product sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>3.7 Kefir product quality and safety is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>3.8 Kefir milk product is packaged in accordance with East Africa Standard (EAS) 1008:2021 Fermented (cultured) milk — Specification</p>   |

|  |   |
|--|---|
|  | <p>3.9 Kefir milk product is sustainably packaged as per work place procedures.</p> <p>3.10 Kefir milk product is stored in accordance with East Africa Standard (EAS) 1008:2021 Fermented (cultured) milk — Specification</p> <p>3.11 Kefir milk product processing equipment is cleaned as per code of hygienic practice for milk and milk products</p> <p>3.12 Dairy waste is disposed as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products</p> <p>3.13 Dairy waste is sustainably disposed as per work place procedures.</p> <p>3.14 Kefir milk product production records are updated as per work instruction manual</p> |
|--|---|

## 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   |
|---|---|
| 1. Yoghurt processing materials and equipment may include but are not limited to:               | <p><u>Material</u></p> <ul style="list-style-type: none"> <li>• Starter culture</li> <li>• Milk</li> <li>• Thickeners</li> <li>• Sweetener</li> <li>• Emulsifier</li> <li>• Stabilizers</li> <li>• Food colour</li> <li>• Flavours</li> </ul> <p><u>Equipment</u></p> <ul style="list-style-type: none"> <li>• Milk pasteurizer</li> <li>• Homogenizer</li> <li>• Fermentation tanks</li> <li>• Thermometers</li> <li>• Cooler</li> </ul> |
| 2. Cultured milk product processing materials and equipment may include but are not limited to: | <p><u>Material</u></p> <ul style="list-style-type: none"> <li>• Starter culture</li> <li>• Milk</li> <li>• Thickeners</li> <li>• Sweetener</li> <li>• Emulsifier</li> <li>• Stabilizers</li> </ul>  |

|   |  |
|---|--|
|   | <ul style="list-style-type: none"> <li>• Food colour</li> <li>• Flavours</li> </ul> <p><b><u>Equipment</u></b></p> <ul style="list-style-type: none"> <li>• Milk pasteurizer</li> <li>• Homogenizer</li> <li>• Fermentation tanks</li> <li>• Thermometers</li> <li>• Cooler</li> </ul>   |
| 3. Kefir product processing materials and equipment may include but are not limited to: | <p><b><u>Material</u></b></p> <ul style="list-style-type: none"> <li>• Kefir grains</li> <li>• Milk</li> <li>• Thickeners</li> <li>• Sweetener</li> <li>• Emulsifier</li> <li>• Stabilizers</li> <li>• Food colour</li> <li>• Flavours</li> </ul> <p><b><u>Equipment</u></b></p> <ul style="list-style-type: none"> <li>• Milk pasteurizer</li> <li>• Homogenizer</li> <li>• Fermentation tanks</li> <li>• Thermometers</li> <li>• Cooler</li> </ul> |

## REQUIRED KNOWLEDGE AND SKILLS

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

The individual needs to demonstrate knowledge of:

### Required knowledge

The individual needs to demonstrate knowledge of:

- Dairy microbiology
- Dairy chemistry
- Milk sampling techniques
- Milk quality testing techniques
- Milk preservation techniques
- Good manufacturing practices
- Code of hygiene
- Legal requirements

- Record keeping
- Dairy waste and management
- Fermented milk technology

### Required skills

The individual needs to demonstrate the following skills:

- Communication skills
- Problem solving
- Analytical skills
- Milk handling skills
- Food safety risk assessment
- Fermented equipment handling
- Fermented milk culture handling
- Fermented milk testing skill

### EVIDENCE GUIDE

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

|                                   |  |
|-----------------------------------|--|
| 1. Critical aspects of competency | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Carried out yoghurt product making in accordance with Kenya Standard East Africa Standard (KS EAS) 33-2006, Yoghurt — Specification</li> <li>1.2 Carried out Cultured milk product making in accordance with Kenya East Africa Standard (K EAS) 1008:2021 Fermented (cultured) milk — Specification</li> <li>1.3 Carried out Kefir milk product making in accordance with East Africa Standard (EAS) 1008:2021 Fermented (cultured) milk — Specification.</li> <li>1.4 Analysed Yoghurt product quality in accordance with KS ISO/TC 34/SC 5 milk and milk products</li> <li>1.5 Analyzed Cultured milk quality in accordance with KS ISO/TC 34/SC 5 milk and milk products</li> <li>1.6 Processing equipment is cleaned as per code of hygienic practice for milk and milk products</li> </ul> |
| 2. Resource implications          | <p>The following resources should be provided:</p> <ul style="list-style-type: none"> <li>2.1 Appropriately simulated environment where assessment can take place</li> <li>2.2 Access to relevant work environment</li> <li>2.3 Resources relevant to the proposed activities or tasks</li> </ul>  |

|  |  |
|--|--|
| 3. Methods of assessment               | <p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> <li>3.1 Practical assessment</li> <li>3.2 Oral questioning</li> <li>3.3 Portfolio of evidence</li> <li>3.4 Interviews</li> <li>3.5 Third party report</li> <li>3.6 Written tests</li> </ul> |
| 4. Context of assessment               | <p>Competency may be assessed:</p> <ul style="list-style-type: none"> <li>4.1 Workplace</li> <li>4.2 Simulated work environment</li> </ul>   |
| 5. Guidance information for assessment | <p>Holistic assessment with other units relevant to the industry sector and workplace job role is recommended.</p>   |