

## PROCESS CHEESE PRODUCTS

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### UNIT DESCRIPTION

This unit specifies the competencies required by a Dairy Plant Technician level 5 to process Cheese products. It involves producing Cheddar, Gouda Paneer, Mozzarella cheese, Processed and Cream cheese.

### ELEMENTS AND PERFORMANCE CRITERIA

<b>ELEMENT</b> These describe the key outcomes which make up workplace functions	<b>PERFORMANCE CRITERIA</b> 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. Produce cheddar cheese	1.1 Raw milk sample is collected as per Kenya Standard (KS) ISO 707:2008 Sampling of milk and milk products 1.2 <b>Raw milk quality analysis</b> is carried out in accordance with KS ISO/TC 34/SC 5 milk and milk products 1.3 <b>Cheddar cheese processing materials and equipment</b> are assembled as per work requirement. 1.4 Cheddar cheese making is carried out in accordance with Kenya Standard (KS) 28-1, General standard for cheese. 1.5 Cheddar cheese is ripened in accordance with KS 28-1, General standard for cheese. 1.6 AI is applied in Cheddar cheese making as per work place procedures. 1.7 Cheddar cheese sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products 1.8 Cheddar cheese quality is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products 1.9 Cheddar cheese is packaged in accordance with KS 28-1, General standard for cheese. 1.10 Cheddar cheese is sustainably packaged as per work place procedures. 1.11 Cheddar cheese is stored in accordance with KS 28-1, General standard for cheese. 1.12 Cheddar cheese processing equipment is cleaned as per code of hygienic practices for milk and milk products 1.13 Dairy waste is disposed as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products 1.14 Dairy waste is sustainably managed and disposed as per work place procedures. 1.15 Cheddar cheese production records are updated as per work instruction manual
2. Produce gouda cheese	2.1 Raw milk sample is collected as per KS ISO 707:2008 Sampling of milk and milk products

	<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>Gouda cheese processing materials and equipment</b> are assembled based on work requirement.</p> <p>2.4 Gouda cheese making is carried out in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</p> <p>2.5 Gouda cheese is ripened in accordance with KS 28-1, General standard for cheese.</p> <p>2.6 AI is applied in Gouda cheese making as per work place procedures.</p> <p>2.7 Gouda cheese sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>2.8 Gouda cheese quality is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>2.9 Gouda cheese is packaged in accordance with KS 28-1, General standard for cheese.</p> <p>2.10 Gouda cheese is sustainably packaged as per work place procedures.</p> <p>2.11 Gouda cheese is stored in accordance with KS 28-1, General standard for cheese.</p> <p>2.12 Gouda cheese processing equipment is cleaned as per code of hygienic practices for milk and milk products</p> <p>2.13 Dairy waste is disposed as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products</p> <p>2.14 Dairy waste is sustainably managed and disposed as per work place procedures.</p> <p>2.15 Gouda cheese production records are updated as per work instruction manual</p>
3. Produce paneer cheese	<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>Paneer cheese processing materials and equipment</b> are assembled based on work requirement.</p> <p>3.4 Paneer cheese making is carried out in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</p> <p>3.5 AI is applied in Paneer cheese making as per work place procedures.</p> <p>3.6 Paneer cheese sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>3.7 Paneer cheese quality is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>3.8 Paneer cheese is packaged in accordance with KS 28-1, General standard for cheese.</p> <p>3.9 Paneer cheese is sustainably packaged as per work place procedures.</p> <p>3.10 Paneer cheese is stored in accordance with KS 28-1, General standard for cheese.</p> <p>3.11 Paneer cheese processing equipment is cleaned as per code of hygienic practices 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 managed and disposed as per work place procedures.</p> <p>3.14 Paneer cheese production records are updated as per work instruction manual</p>
4. Produce mozzarella cheese	<p>4.1 Raw milk sample is collected as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>4.2 <b>Raw milk quality analysis</b> is carried out in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>4.3 <b>Mozzarella cheese processing materials and equipment</b> are assembled based on work requirement.</p> <p>4.4 Mozzarella cheese making is carried out in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</p> <p>4.5 AI is applied in Mozzarella cheese making as per work place procedures.</p> <p>4.6 Mozzarella cheese sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>4.7 Mozzarella cheese quality is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>4.8 Mozzarella cheese is packaged in accordance with KS 28-1, General standard for cheese.</p> <p>4.9 Mozzarella cheese is sustainably packaged as per work place procedures.</p> <p>4.10 Mozzarella cheese is stored in accordance with KS 28-1, General standard for cheese.</p> <p>4.11 Mozzarella cheese processing equipment is cleaned as per code of hygienic practices for milk and milk products</p> <p>4.12 Dairy waste is disposed as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products</p> <p>4.13 Dairy waste is sustainably managed and disposed as per work place procedures.</p> <p>4.14 Mozzarella cheese production records are updated as per work instruction.</p>
5. Produce processed cheese	<p>5.1 <b>Processed cheese processing materials and equipment</b> are assembled based on work requirement.</p> <p>5.2 Processed cheese making is carried out in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</p> <p>5.3 AI is applied in Processed cheese making as per work place procedures.</p> <p>5.4 Processed cheese sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>5.5 Processed cheese quality is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>5.6 Processed cheese is packaged in accordance with KS 28-1, General standard for cheese.</p> <p>5.7 Processed cheese is sustainably packaged as per work place procedures.</p>

	<p>5.8 Processed cheese is stored in accordance with KS 28-1, General standard for cheese.</p> <p>5.9 Processed cheese processing equipment is cleaned as per code of hygienic practices for milk and milk products</p> <p>5.10 Dairy waste is disposed as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products</p> <p>5.11 Dairy waste is sustainably managed and disposed as per work place procedures.</p> <p>5.12 Processed cheese production records are updated as per work instruction manual</p>
6. Produce cream cheese	<p>6.1 <b>Processing materials and equipment</b> are assembled based on work requirement.</p> <p>6.2 Cream cheese making is carried out in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</p> <p>6.3 AI is applied in Processed cheese making as per work place procedures.</p> <p>6.4 Cream cheese sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>6.5 Cream cheese quality is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>6.6 Cream cheese is packaged in accordance with KS 28-1, General standard for cheese.</p> <p>6.7 Cream cheese is sustainably packaged as per work place procedures.</p> <p>6.8 Cream cheese is stored in accordance with KS 28-1, General standard for cheese.</p> <p>6.9 Cream cheese processing equipment is cleaned as per code of hygienic practices for milk and milk products</p> <p>6.10 Dairy waste is disposed as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products</p> <p>6.11 Dairy waste is sustainably managed and disposed as per work place procedures.</p> <p>6.12 Cream cheese production records are updated as per work instruction manual</p>
7. Produce Feta Cheese	<p>7.1 Raw milk sample is collected as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>7.2 Raw milk quality analysis is carried out in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>7.3 Feta cheese processing materials and equipment are assembled based on work requirement.</p> <p>7.4 Feta cheese making is carried out in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</p> <p>7.5 Feta cheese sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products</p> <p>7.6 Feta cheese quality and safety is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products</p> <p>7.7 Feta cheese is packaged in accordance with (KS) 28-1, General standard for cheese.</p>

	<p>7.8 Feta cheese is stored in accordance with (KS) 28-1, General standard for cheese.</p> <p>7.9 Processing equipment is cleaned as per code of hygienic practice for milk and milk products</p> <p>7.10 Dairy waste is disposed as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products</p> <p>7.11 Feta cheese production records are updated as per work instruction manual.</p>
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## 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. Cheddar cheese 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>• Starter culture</li> <li>• Rennet</li> <li>• Food Colour</li> <li>• Salt</li> </ul> <p><b><u>Equipment</u></b></p> <ul style="list-style-type: none"> <li>• Cheese vat</li> <li>• Cheese press</li> <li>• Cheese mould</li> <li>• Knives</li> <li>• Cheese cloth</li> <li>• Miller</li> <li>• pH meter</li> <li>• Thermometer</li> </ul>
2. Gouda cheese 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>• Starter culture</li> <li>• Rennet</li> <li>• Food Colour</li> <li>• Salt</li> </ul> <p><b><u>Equipment</u></b></p> <ul style="list-style-type: none"> <li>• Cheese vat</li> <li>• Cheese press</li> <li>• Cheese mould</li> <li>• Knives</li> <li>• Cheese cloth</li> <li>• Thermometer</li> <li>• pH meter</li> </ul>
3. Paneer cheese 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>• Citric acid</li> <li>• Food Colour</li> <li>• Salt</li> </ul> <p><b><u>Equipment</u></b></p> <ul style="list-style-type: none"> <li>• Cheese vat</li> </ul>

	<ul style="list-style-type: none"> <li>● Cheese mould</li> <li>● Knives</li> <li>● Cheese cloth</li> <li>● Thermometer</li> <li>● pH meter</li> </ul>
4. Mozzarella cheese 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>● Starter culture</li> <li>● Rennet</li> <li>● Food Colour</li> <li>● Salt</li> </ul> <p><b><u>Equipment</u></b></p> <ul style="list-style-type: none"> <li>● Cheese vat</li> <li>● Knives</li> <li>● Stretcher</li> </ul>
5. Processed cheese 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>● Cheese</li> <li>● Food Colour</li> <li>● Food flavours</li> <li>● Emulsifier</li> <li>● Stabilizer</li> <li>● Salt</li> <li>● Permitted preservative</li> <li>● Skim milk powder</li> <li>● Portable water</li> </ul> <p><b><u>Equipment</u></b></p> <ul style="list-style-type: none"> <li>● Batch pasteurizer</li> <li>● Cheese mould</li> <li>● Knives</li> <li>● Cheese vat</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:

- Dairy microbiology
- Dairy chemistry
- Milk sampling techniques
- Milk quality testing techniques
- Good manufacturing practices
- Code of hygiene practices
- Dairy standards
- Record keeping
- Dairy waste and management
- Cheese technology

## Required skills

The individual needs to demonstrate the following skills:

- Communication
- Problem solving
- Analytical
- Milk handling
- Cheese equipment handling
- Cheese making
- Milk testing

## 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> <ol style="list-style-type: none"><li>1.1 Carried out Cheddar cheese making in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</li><li>1.2 Carried out Gouda cheese making in accordance with Kenya Standard (KS) 28-1, General standard for cheese</li><li>1.3 Ripened Cheddar cheese in accordance with KS 28-1, General standard for cheese.</li><li>1.4 Ripened Gouda cheese in accordance with KS 28-1, General standard for cheese.</li><li>1.5 Carried out Paneer cheese making in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</li><li>1.6 Carried out Mozzarella cheese making in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</li><li>1.7 Carried out Processed cheese making in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</li><li>1.8 Carried out Cream cheese making in accordance with Kenya Standard (KS) 28-1, General standard for cheese.</li><li>1.9 Cheese quality is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products</li><li>1.10 Cleaned cheese processing equipment as per code of hygienic practices for milk and milk products</li></ol>
2.Resource implications	<p>The following resources should be provided:</p> <ol 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></ol>

11. Methods of assessment	Competency in this unit may be assessed through: 3.1 Practical assessment 3.2 Oral questioning 3.3 Portfolio of evidence 3.4 Third party report 3.5 Written tests
12. Context of assessment	Competency may be assessed: 4.1 Workplace 4.2 Simulated work environment
13. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector and workplace job role is recommended.