PROCESS FAT BASED MILK PRODUCTS

ISCED UNIT CODE: 0721 351 04A

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UNIT DESCRIPTION

This unit specifies the competencies required by a Dairy Plant Technician level 5 to process Fat Based Milk products. It involves producing dairy cream, dairy Butter, dairy Ghee and dairy Ice Cream.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace functions	**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. Produce dairy cream	1.1 Raw milk sample is collected as per KS ISO 707:2008 Sampling of milk and milk products 1.2 ***Raw milk and ingredients samples analysis*** is carried out in accordance with KS ISO/TC 34/SC 5 milk and milk products 1.3 ***Cream processing materials and equipment*** are assembled based on work requirement. 1.4 Dairy cream product is produced in accordance with KS 35:2018 Dairy cream and prepared creams – Specification 1.5 AI is applied in dairy cream production as per work place procedures. 1.6 Dairy cream product sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products 1.7 Dairy ***cream product quality is analysed*** in accordance with KS ISO/TC 34/SC 5 milk and milk products 1.8 Dairy cream product is packaged in accordance with KS 35:2018 Dairy cream and prepared creams – Specification 1.9 Dairy cream product is sustainably packaged as per work place procedure. 1.10 Dairy cream product is stored in accordance with KS 35:2018 Dairy cream and prepared creams - Specification. 1.11 Dairy cream processing equipment is cleaned as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products 1.12 Dairy waste is disposed as per KS 1552- 2016 code of Hygienic practice for milk and milk products 1.13 Dairy waste is sustainably managed and disposed as per work place procedures. 1.14 Dairy cream product production records are updated as per work instruction manual
2. Produce dairy butter	2.1 Raw milk sample is collected as per KS ISO 707:2008 Sampling of milk and milk products 2.2 Raw milk sample is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products

	2.3 ***Butter processing materials and equipment*** are assembled based on work requirement. 2.4 Dairy butter making is carried out in accordance with KS EAS 22:2019 Butter - Specification 2.5 Dairy butter product sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products 2.6 Dairy ***butter product quality is analysed*** in accordance with KS ISO/TC 34/SC 5 milk and milk products 2.7 AI is applied in Dairy butter making as per work place procedures. 2.8 Dairy butter is packaged in accordance with KS EAS 22:2019 Butter - Specification 2.9 Dairy butter is sustainably packaged as per work place procedures. 2.10 Dairy butter product is stored in accordance with KS EAS 22:2019 Butter - Specification 2.11 Dairy butter processing equipment is cleaned as per Kenya Standards (KS)1552- 2016 code of Hygienic practice for milk and milk products 2.12 Dairy waste is disposed as per KS1552- 2016 code of Hygienic practice for milk and milk products 2.13 Dairy waste is sustainably managed and disposed as per work place procedures. 2.14 Dairy butter product production records are updated as per work instruction manual.
3. Produce dairy ghee	3.1 ***Ghee processing materials and equipment*** are assembled based on work requirement. 3.2 Dairy ghee making is carried out in accordance with KS 326 Specification for edible fats and oils 3.3 AI is applied in dairy ghee production as per work place procedures. 3.4 Dairy Ghee product sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products 3.5 Dairy ***Ghee product quality is analysed*** in accordance with KS ISO/TC 34/SC 5 milk and milk products 3.6 Dairy ghee is packaged in accordance with KS 326 Specification for edible fats and oils 3.7 Dairy ghee product is sustainably packaged as per work place procedure. 3.8 Dairy ghee product is stored in accordance with KS 326 Specification for edible fats and oils 3.9 Dairy ghee product processing equipment is cleaned as per Kenya Standards (KS)1552- 2016 Code of Hygienic practice for milk and milk products 3.10 Dairy waste is disposed as per KS 1552- 2016 Code of Hygienic practice for milk and milk products 3.11 Dairy waste is sustainably managed and disposed as per work place procedures. 3.12 Dairy ghee product production records are updated as per work instruction manual.

4. Produce dairy ice cream	4.1 ***Dairy Ice cream processing materials and equipment*** are assembled based on work requirement. 4.2 Dairy Ice cream making is carried out in accordance with Kenya Standard East Africa Standard (KS EAS 70) Dairy ice cream — Specification 4.3 AI is applied in Ice cream production as per work place procedures. 4.4 Dairy Ice Cream product sample is drawn as per KS ISO 707:2008 Sampling of milk and milk products 4.5 Dairy ***Ice Cream quality is analysed*** in accordance with KS ISO/TC 34/SC 5 milk and milk products 4.6 Dairy Ice cream product is packaged in accordance with (K EAS 70) Dairy ice cream — Specification 4.7 Dairy Ice cream product is sustainably packaged as per work place procedure. 4.8 Dairy Ice cream product is stored in accordance with (K EAS 70) Dairy ice cream — Specification 4.9 Dairy Ice cream product processing equipment is cleaned as Kenya Standards (KS)1552- 2016 Code of Hygienic practice for milk and milk products 4.10 Dairy waste is disposed as per KS1552- 2016 Code of Hygienic practice for milk and milk products. 4.11 Dairy waste is sustainably managed and disposed as per work place procedures Dairy Ice cream product production records are updated as per work instruction manual.

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. Butter processing materials and equipment may include but are not limited to:	**Materials** • Raw milk • Cream • Salt • Food colours **Equipment** • Cream separator • Butter churn
2. Ghee Processing materials and equipment may include but are not limited to:	**Materials** • Butter • Cream

	Equipment • Heat exchangers
3. Dairy Ice cream processing materials and equipment may include but are not limited to:	**Materials** • Milk powder • Sweeteners • Flavours • Food colour • Stabilizers • Emulsifiers **Equipment** • Ice cream freezer
4. Cream product quality analysis may include but are not limited to:	• Acidity • Fat content • Yeast and mould • Coliforms plate count • Total plate count • Sensory evaluation
5. Butter product quality is analysis may include but are not limited to:	• Fat content • Acidity • Yeast and mould • Coliforms plate count • Total plate count • Moisture content • Sensory evaluation
6. Ice Cream quality is analysis may include but are not limited to:	• Acidity • Fat content • Yeast and mould • Coliforms plate count • Total plate count • Sensory evaluation
7. Ghee product quality may include but are not limited to:	• Fat content • Yeast and mould • Coliforms plate count • Total plate count • Sensory evaluation

REQUIRED KNOWLEDGE AND SKILLS

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

Required knowledge

The individual needs to demonstrate knowledge of:

- Milk sampling techniques
- Milk tests
- Cream production
- Butter making technology
- Ghee making technology
- Ice cream technology
- Principles of sensory evaluation
- Codes of hygienic practice (s)
- Dairy products standards
- Good manufacturing practices
- Good laboratory practices
- Cleaning of processing equipment
- Dairy waste and management
- Records keeping

Required skills

The individual needs to demonstrate the following skills:

- Operation of cream separator
- Operation of butter churn
- Operation of ghee pot
- Operation of ice cream freezer.
- Measuring
- Milk sampling
- Milk testing
- Reagent preparation
- Food safety risk assessment and communication
- Food handling
- Computation
- Communication
- Documentation and record keeping
- Active listening
- Basic ICT
- Critical thinking
- Writing
- Problem solving
- Analytical

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	Assessment requires evidence that the candidate: 1.1 Produced dairy cream product in accordance with KS 35:2018 Dairy cream and prepared creams - Specification 1.2 Carried out Dairy butter making is in accordance with KS EAS 22:2019 Butter - Specification 1.3 Carried out Dairy ghee making in accordance with KS 326 Specification for edible fats and oils 1.4 Carried out Dairy Ice cream making in accordance with Kenya Standard East Africa Standard (KS EAS 70) Dairy ice cream — Specification 1.5 Analysed Dairy cream product quality in accordance with KS ISO/TC 34/SC 5 milk and milk products 1.6 Analysed Dairy butter product quality in accordance with KS ISO/TC 34/SC 5 milk and milk products 1.7 Dairy Ghee product quality is analysed in accordance with KS ISO/TC 34/SC 5 milk and milk products 1.8 Analysed Dairy Ice Cream quality in accordance with KS ISO/TC 34/SC 5 milk and milk products
2. Resource implications	The following resources should be provided: 2.1 Assessment location / work place 2.2 Personal Protective Equipment
3. Methods of assessment	Competency in this unit may be assessed through: 3.1 Practical report 3.2 Observation 3.3 Oral questioning 3.4 Portfolio of evidence 3.5 Interviews 3.6 Third party report 3.7 Written tests
4. Context of assessment	Competency may be assessed: 4.1 Workplace 4.2 Simulated work environment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector and workplace job role is recommended.