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Standard of hygienic practice for milk and milk products



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Contents

Page

Foreword	iv
1 Scope	1
This standard prescribes the hygienic conditions and practices for production, handling, processing, storage, transportation, marketing, distribution and sale of milk and milk products	1
2 Normative references	1
3 Terms and definitions	1
Over-arching principles applicable to all milk and milk products are the following.....	4
5.9.4 Transport procedure	13
7.4 Equipment	17
9.4 Appliances	30
9.5 Health and Hygiene of Vendors	31
9.5.1 Health Status of Vendors.....	31
9.5.2 Personal Hygiene and Behaviour	31
9.5.3 Training of Vendors.....	31
9.6 Transportation of Milk or Milk products to the point of sale	32
9.7 Selling Milk and Milk Products.....	32
10 Training	32
10.1 General	32
10.2 Awareness and responsibilities.....	32
10.3 Training programs.....	33
10.4 Refresher Training.....	33
10.5 Monitoring	33
Bibliography.....	34

Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to co-ordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO) and
- (b) a contact point for the WHO/FAO Standardx Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 2, *Food and Agriculture Subcommittee SC 1, [Dairy and dairy products]*.

This second edition cancels and replaces the first edition (US 163:2000), which has been technically revised.

Introduction

Milk and milk products are a rich and convenient source of nutrients for people in many countries and international trade of milk-based commodities is significant. The purpose of this standard is to provide guidance to ensure the safety and suitability of milk and milk products to protect consumers' health and to facilitate trade.

All foods have the potential to cause food borne illness, and milk and milk products are no exception. Dairy animals may carry human pathogens. Such pathogens present in milk may increase the risk of causing food borne illness. Moreover, the milking procedure, subsequent pooling and the storage of milk carry the risks of further contamination from man or the environment or growth of inherent pathogens. Further, the composition of many milk products makes them good media for the outgrowth of pathogenic micro-organisms. Potential also exists for the contamination of milk with residues of veterinary drugs, pesticides and other chemical contaminants. Therefore, implementing the proper hygienic control of milk and milk products throughout the food chain is essential to ensure the safety and suitability of these foods for their intended use. This standard is aimed at providing guidance to the milk sector so that appropriate level of public health protection for milk and milk products is achieved. It is also the purpose of this standard to prevent unhygienic practices and conditions in the production, processing, and handling of milk and milk products, as milk and milk products form a large portion of the diet of consumers especially infants, children, and pregnant and lactating women. This standard presents principles for the hygienic production and manufacture of milk and milk products and guidance on their application. This standard takes into consideration, to the extent possible, the various production and processing procedures as well as the differing characteristics of milk from various milking animals used by member countries. It focuses on acceptable food safety outcomes achieved through the use of one or more validated food safety control measures, rather than mandating specific processes for individual products.

Standard of hygienic practices for milk and milk products

1 Scope

This standard prescribes the hygienic conditions and practices for production, handling, processing, storage, transportation, marketing, distribution and sale of milk and milk products

2 Normative references

The following referenced documents referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

US EAS 38, *Standard Specifications for Labelling of Pre-packaged Foods*.

US EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

US 130, *General Requirements for Establishing a Hazard Analysis Critical Control Point (HACCP) Programme for Food Processing Establishments*.

US EAS 12, *Standard Specifications for Drinking (Potable) Water*

US Codex 206: *Codex standard for use of dairy terms*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in US Codex 206 and the following apply.

3.1 appliances

whole or any part of any utensil, machinery, instrument, apparatus, or article, used or intended for use in or for processing, storing, selling or supplying of milk or milk products.

3.2 aseptic Processing

heating and direct fill packaging process which can be verified to assure that the product being aseptically processed is commercially sterile and will maintain commercial sterility under non-refrigerated conditions.

3.3 cleaning

removal of soil, food residue, dirt, grease or other objectionable matter.

3.4 contaminant

biological or chemical agent, foreign matter, or other substances not intentionally added to food which may compromise food safety or suitability.

- 3.5
contamination**
introduction or occurrence of a contaminant in food or food environment.
- 3.6
disinfection**
reduction, by means of chemical agents and/or physical methods, of the number of micro-organisms in the environment, to a level that does not compromise food safety or suitability.
- 3.7
end Product**
food which is ready for sale.
- 3.8
equivalent sanitary measure**
Different sanitary measures which, when properly applied, result in end products which meet the same level of public health protection.
- 3.8
establishment**
any building or area in which food is handled and the surroundings under the control of the same management.
- 3.9
food hygiene**
all conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain.
- 3.10
Food handler**
any person who directly handles packaged or un packaged food, food equipment and utensils, or food contact surfaces and is therefore expected to comply with food hygiene requirements
- 3.11
Food safety**
assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use.
- 3.12
Food suitability –**
assurance that food is acceptable for human consumption according to its intended use.
- 3.13
hazard**
a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect
- 3.14
Hazard Analysis Critical Control Point (HACCP)**
a system, which identifies, evaluates, and controls hazards which are significant for food safety
- 3.15
milk**
normal mammary secretion of milking animals obtained from one or more milkings, without either addition to it or extraction from it, intended for consumption as liquid milk or for further processing.

3.16**milk Product**

product obtained from milk with the addition only of food additives, processing aids and other ingredients functionally necessary for the manufacturing process.

3.17**milk vending centre:**

public place or establishment designated by the relevant authority for the display and sale of milk and milk products by multiple vendors.

3.18**milk vending stall**

a place where, milk or milk products are displayed, served or sold to the public. It includes carts, tables, benches, baskets, chairs, vehicles with or without wheels and any other structure approved by the relevant authority where on it or in it, any milk or milk products are displayed for sale.

3.19**mobile milk Vendor**

means any person with/without a vehicle going from place to place for the purpose of displaying, distributing or delivering milk or milk products.

3.20**micro-organisms**

microscopic living organism that can cause disease or food spoilage.

3.21**pasteurization**

process applied to a product with the object of eliminating possible health hazards arising from pathogenic micro-organism associated with the product by heat treatment which is consistent with minimal chemical, physical and organoleptic changes in the product.

3.22**holder method –**

temperature of milk shall be raised to not more than 72 o C and not less than 65 o C and retained within this range for 30 minutes and immediately and rapidly cooled to 10 o C or less.

3.23**high temperature short time method**

temperature of milk shall be raised to not less than 72 o C retained at this temperature for 15 seconds and immediately and rapidly cooled to 10oC or less.

3.24**potable Water**

water, which shall comply with Uganda Standard Specifications for potable water (US 201).

3.25**primary production**

steps in the milk production up to and including milking.

3.26**raw milk**

normal, clean and fresh secretion obtained by practically emptying the udder of the healthy animal, properly fed and kept but excluding that got during the first seven days after calving and which has not been treated to be suitable for direct consumption.

3.27**relevant authority**

the Ministry having responsibility and any local or officially recognised authority.

**3.28
utensil**

appliance, container and equipment including traditional types used in the processing, storage and sale of milk and milk products.

**3.29
waste Water**

sullage water arising as a result of the activity of milk and milk products handlers.

**3.30
water Container**

form of food grade container which is used solely for the purpose of storing and serving water and has not been used previously for any other purposes which could cause contamination of the water stored in it.

4 General principles applicable to the production of milk and milk products

This Standard focuses on the use of acceptable practices for the hygienic production, handling, processing, storage, transportation, marketing, distribution and sale of milk and milk products as achieved through the use of validated control measures.

Over-arching principles applicable to all milk and milk products are the following:

- a) milk and milk products when presented to the consumer shall be safe for human consumption;
- b) different risks are associated with different products and their end uses and this shall be considered when applying the provisions of this standard.
- c) from raw material production to the point of human consumption, the products covered by this standard shall be subject to a combination of control measures, and these control measures shall be shown to achieve the appropriate level of public health protection;
- d) milk and milk products shall be suitable for the intended purpose;
- e) Food hygiene control measures and control measure combinations used in the production of milk and milk products shall be validated to demonstrate that they are effective in achieving their intended purpose, including, as appropriate, the specified level of public health protection and
- f) All aspects of milk production and processing shall be monitored to ensure that the control measures have been effectively applied.

5 Primary Milk Production

5.1 Principles applicable to the primary production of milk

5.1.1 Control measures employed at the primary production level for the production of milk shall result in a safe and suitable raw material for further processing.

5.1.2 Good manufacturing practices and good hygiene practices do apply and shall be practised

5.1.3 Due to practical limitation to the use of HACCP in milk production, the manufacturer's Hazard Analysis shall determine the controls necessary in milk production and their stringency.

5.2 Environmental Hygiene

5.2.1 Appropriate surface and ground water controls shall be in place to minimize the levels of pesticide residues and other chemical contaminants, pathogenic micro-organisms and parasites in water used to wash

the udders of milking animals prior to milking as well as that used to rinse, clean or disinfect milking equipment, storage equipment and other product contact surfaces.

5.2.2 Precautions shall be taken to ensure that milking animals do not consume or have access to contaminated water, feeds or any environmental contaminants likely to cause disease or contaminate milk.

5.2.3 Adequate measures shall be put in place to control vermin without contaminating milk with residues and extraneous matter, such as pesticides and vermin hair.

5.3 Premises for Milk Production

Premises for production of milk covered by this standard shall be maintained in a manner that will minimise or prevent contamination of milk.

The house-hold, farm or milk collecting centre shall meet the requirements of the public health laws of Uganda and shall in particular have the following provisions;

5.3.1 Water Supply

An adequate supply of potable water with appropriate facilities for its storage, distribution and temperature control shall be available to ensure the safety and suitability of milk.

Potable water shall meet the requirements specified in US EAS 12.

5.3.2 Drainage and Waste Disposal

Adequate drainage and waste disposal systems and facilities shall be provided. They shall be designed and constructed so that the risk of contaminating milk and milk products or the potable water supply is avoided.

In the case of a household in the village,

- a) quick growing hedge all round to act as a break against dust and wind shall be provided;
- b) drain, ending into a soak pit to carry waste water and liquid waste shall be provided;
- c) pit for depositing litter and refuse shall be provided and
- d) the yard shall be kept clean by sweeping daily and shall be disinfected with lime dust at the end of each month.

5.3.3 Personnel Hygiene Facilities and Toilets

5.3.3.1 Personnel hygiene facilities shall be available to ensure that an appropriate degree of personal hygiene can be maintained and to avoid contaminating milk. Facilities shall include:

- a) adequate means of hygienically washing and drying hands; and
- b) latrine and or toilet for safe disposal of human waste. The latrine and or toilet shall have adequate hand washing facilities.

5.3.3.1 Such facilities shall be suitably located and designated.

5.3.4 Milking areas and related facilities

5.3.4.1 Milking Shed

5.3.4.1.1 A separate shed designated as a milking shed shall be provided and constructed in such a way as to eliminate or minimize contamination of milk.

5.3.4.1.2 The shed shall be maintained in a sound condition and shall be provided with suitable floor space with the arrangement to restrain the animals.

5.3.4.1.3 The shed shall have a shallow drain adjoining the drain provided in the yard to carry away any liquid waste.

5.3.4.1.4 Immediately after milking, the dung shall be removed and the shed shall be cleaned.

5.3.4.2 Milking Parlour

In modern farms where milking parlours are constructed and/or milking machine used,

- a) the Premises shall be easy to clean and maintained in a manner that will minimise or prevents the contamination of milk;
- b) the planning and layout shall be such as to provide for adequate facilities for drainage and waste disposal;
- c) infestation of the place with vermin shall be prevented;
- d) (d) facilities shall be provided for safe and potable water for drinking, washing udders and flanks of the animals and for washing milkers' hands and milking equipment;
- e) the Premises shall be adequately lit and ventilated;
- f) the premises shall have well-fitting screens on windows and doors to keep out flies and
- g) the windows and doors shall be preferably of the swing-type opening outwards.

5.4 Animal Care

The care and management of healthy cattle is the starting point in hygienic milk production.

5.4.1 Animal holding Shed or Barn

The animal shed or barn shall be so designed as to be comfortable to the animals and not adversely affect their health.

The animals shed or barn shall be kept clean and maintained in a manner that does not result in any health risk to the milk and hence the consumer.

5.4.2 Feeding

Forage, feed and fodder for the milking animals shall not present a risk of transferring, directly or indirectly, pesticides residues, or other toxins, taint or any other agent used or incidental in the production of feed stuffs into the milk in amounts that present a health risk to the consumer. There shall be provisions for proper mangers (feeding troughs).

With consideration given to the end use of the milk, particularly for milk used in the production of raw milk products, the ensilage treatment, if used, shall be controlled to ensure that it does not result in an unacceptable health risk to the consumer.

5.4.3 Animal Health

- a) milk from animals that have been treated with antibiotics, acaricides or other veterinary drugs that can be transferred to the milk, shall not be used until the withdrawal period specified for the drug in question has been achieved;
- b) the health of milking animals shall be maintained in a manner that does not result in an unacceptable health risk to the consumer;
- c) diseased animals or herds shall be isolated to prevent the transmission of disease to healthy animals;

NOTE It is advisable to monitor the occurrence of pathogens such as *Listeria monocytogenes* in the dairy herd so as to get early warnings of potential dangers of contamination of milk.

- d) with consideration given to part (a), it is recommended that individual animal identification tags be used to keep permanent records of specific treatments given to individual animals and
- e) milk for human consumption, shall be drawn only from animals that are clinically free from diseases that may make the milk unfit for human consumption.

5.4.4 Preparation of Animals for milking

Every milk producer shall bring animals to the milking place in as clean a condition as possible.

Before each milking, the udder and teats of the animal shall be effectively washed and cleaned by a spray of clean water and dried with a clean dry towel.

Long hairs on flanks, hind legs, tail and udder shall be clipped at frequent intervals.

5.5 Milking and milk handling equipment

5.5.1 Construction

- a) The utensils and equipment used during milking shall be of standard food contact grade quality preferably stainless steel.
- b) They shall be constructed from acceptable, non-absorbent and corrosion-resistant materials and shall be easy to clean.
- c) The utensils and equipment shall not have any joints or open seams and shall be free from dents, rust, etc.
- d) Milking and milk handling equipment and utensils which are intended to come into contact with milk (e.g., containers, tanks, etc.) shall be easy to clean and disinfect, corrosion resistant and not capable of transferring substances to milk in such quantities as to present a health hazard to the consumer.

5.5.2 Cleaning

5.5.2.1 All the utensils shall be clean and kept dry and stored in such away as to avoid contamination.

5.5.2.2 The utensils, including the transport cans and equipment shall be thoroughly cleaned and sanitised after each use.

5.5.2.3 An acceptable, non-toxic and non-corrosive cleaning and bactericidal agent shall be used for cleaning and sanitation daily.

5.5.2.4 The utensils shall be covered with muslin and drained dry on a stand of appropriate material in an upside down position.

5.5.2.5 After cleaning and sanitation, the utensils and equipment shall be stored in such a manner and in such a location as to prevent recontamination from flies, insects, dust, dirt, rodents, etc. They should preferably be stored in an inverted position to facilitate drainage of wash water. US 163:2000 6

5.5.2.6 The transport cans dusters; brushes and the straining cloth shall be cleaned and sterilised.

5.5.3 Milking Utensils

For hand milking the following utensils shall be used:

- a) Sanitary milking containers;
- b) Foremilk receptacles;
- c) A strip cup for testing mastitis;
- d) Milk measures;
- e) A container for keeping milk measures in clean condition;
- f) Milk cans of appropriate capacity with proper lids and
- g) Strainers or straining cloth.

5.5.4 Milking Machines and Equipment

Where milking is done by machine or other equipment,

- a) the equipment shall be installed and tested in accordance with manufacturer's instructions and in accordance with appropriate technical standards and
- b) there shall be a periodic verification process to ensure that milking equipment is in good working condition;

5.5.5 Milk coolers at the farm

Where milk is cooled at the farm

- a) The equipment shall be installed and tested in accordance with manufacturer's instructions and in accord with appropriate technical standards.
- b) There shall be a periodic verification process to ensure that equipment is in good working condition.

5.6 Health and Hygiene of milk Handlers

5.6.1 Health

People known to be carriers of a communicable disease or illness that may be transferred through the milk shall not perform milking and milk handling.

The milk handler shall be healthy and free from contagious or communicable diseases such as tuberculosis and typhoid. Commercial farms shall carry out medical examination on all milk handlers.

Any person so affected shall seek medical attention.

5.6.2 Personal Hygiene of milk Handlers

The milk handler shall:

- a) bathe regularly and wear clean protective clothes of easy to clean material;
- b) not wear strong perfume when milking;
- c) avoid wearing loose jewellery or clothing during milking;
- d) cover all cuts, sores and grazes after treatment to avoid contaminating the milk; persons with sore, cuts or wounds on the hands shall not milk;
- e) keep the head properly covered and their nails well-trimmed for clean milk production;
- f) have clean habits; He or she shall not spit or clean his or her nose, ear or anybody opening or sore during milking.
- g) not eat or chew any substance nor smoke during milking and
- h) not engage in any behaviour that may contaminate milk.

5.6.3 Training

Milk producers shall get basic training in personal and food hygiene as outlined in clause 10.

5.7 Hygienic milking practice

5.7.1 It is advised that the milk producer pay attention to the following, at least half an hour before milking:

- a) clean the milking place and surroundings by removal of dung, sweeping and sprinkling of water to keep down dust; and
- b) wash him/herself thoroughly, wear clean clothes and keep the head properly covered and their nails well trimmed for clean milk production.

5.7.2 The milkers shall also observe the following procedures

- a) milking shall be carried out in such a manner that will minimise the contamination of the milk being produced;
- b) before starting the milking, the milker shall thoroughly wash their hands with soap and water and dry with a clean dry towel;
- c) before each milking, the udder and teats of the animal shall be effectively washed and cleaned by a spray of potable water and dried with a clean dry towel;
- d) the milkers shall test each milking teat for mastitis before milking;
- e) the milk from mastitis affected teats shall be milked last and discarded in a manner that avoids contaminating other milk and/or transfer of mastitis to healthy animals (for example in a pit or any other method approved by the relevant authority);
- f) the udder shall be washed with water and preferably disinfected with teat dip on completion of milking to prevent infection of the teats;
- g) brushing of animals at the time of milking shall be avoided, as it is likely to raise dust in the animals shed;

- h) if animals are fed during milking, the method of feeding and the type of feed used shall be such as to avoid contaminating the milk;
- i) abnormal milk including that got during the first seven days after calving shall not be mixed with normal milk;
- j) on completion of milking, the milk shall be immediately transferred to the transport cans. If it is desirable to measure the milk, this shall be done without delay, by holding the measure over the milk collecting can. The measures shall be emptied directly into the cans through strainers or the straining cloth. These cans shall be properly sealed. After sealing, thick canvas cap shall be placed over the lid and the neck of the can securely tied. The can shall be sent to the collection centre as soon as possible;
- k) immediately after milking, each producer shall carry the milk to the milk-collecting centre and
- l) the foremilk shall be drawn into receptacles provided for the purpose without soiling the hands or dropping on the floor.

5.7.2.1 When milking is done by hand

- a) The milk shall be drained with dry hands. In order to prevent the practice of wet milking and to render milking easier the use of odourless petroleum jelly is recommended.
- b) The milk shall be drawn directly into the milking container as fast as possible.
- c) The milkers shall not wipe their hands on the body of the animals or on their person. The switch of the tail shall not be touched.

5.7.3 Cooling of milk at the farm

Where milk is cooled at the farm the farmer shall cool the milk immediately after milking.

5.8 Collecting and Storage Raw milk

5.8.1 Collection and storage (and related) Equipment

Milk collecting and storage tanks and cans shall be designed and constructed in accordance with appropriate standards to ensure complete drainage and avoid contamination of the milk.

Surfaces of milk storage tanks, cans and associated equipment intended to come into contact with milk shall be easy to clean and disinfect, corrosion resistant and not capable of transferring substances to milk in quantities that will present a health risk to the consumer.

Milk tanks and cans shall be used to store only milk or milk products.

Storage tanks and cans shall be cleaned and disinfected as necessary to minimise or prevent contamination of milk.

5.8.2 Milk Reception at Collection-Cum-Chilling Center

These principles and guidelines are supplemental to those set forth in Specification for Factory and Employee Requirements for Food Factories and to the general principles presented in Section 4 above.

5.8.2.1 General

- a) Collection centres shall be designed and operated in such a manner that minimises or prevents the contamination of milk.
- b) A milk collection and chilling centre shall preferably be situated in an open, clean, and healthy surroundings away from road-side where lot of dust arises due to vehicular traffic; garbage dumps; animals sheds;

open sewage drains or other places likely to breed flies. It shall be free from sources of obnoxious fumes, smoke, odours or excessive dust. There shall not be accumulation of trash, garbage or similar waste in the vicinity of the centre.

- c) Collection centres shall be easily accessible to allow hygienic handling of milk.
- d) Rooms in the milk collection centre shall be clean and risks of contamination shall be reduced to the minimum. Adequate provision must be made for cleaning and sterilisation of containers and utensils.
- e) The floors of the rooms of the collection centre shall be constructed of material that is corrosive resistant and easy to clean and disinfect. It shall be suitably inclined to hasten rapid drainage of wash water.
- f) The walls and ceilings of the rooms shall have a smooth non- absorbent surface preferably fungal resistant, so that they can be efficiently cleaned.
- g) The building shall be well lighted and adequately ventilated.
- h) Cleanliness of the milk-cooling equipment shall be ensured. When surface coolers are used, they shall be provided with metal shields for protection from air contamination.
- i) Seepage of cooling water into the cans when they are immersed in cold water shall be prevented. Similarly, seepage of cooling water into the can shall be avoided during stirring to hasten cooling of milk.
- j) Milk shall be transferred under hygienic conditions to avoid contamination of milk.

5.8.2.2 Collecting Procedure

- a) Only one milk producer shall be allowed into the milk collecting room at a time.
- b) During the milk collection, the lid of the can shall not be placed on the ground.
- c) When not in use the milk measures shall be kept dipped in a basin containing potable water or a suitable disinfectant solution.
- d) Raw milk of clean and hygienic quality shall be produced on the farm and in villages. Since hand milking is widely practised in Uganda, a large amount of visible dirt and other particulate matter, which may accumulate in milk, shall be removed by straining. This may be achieved by using a clean piece of cloth or strainer of suitable material containing filter pad, which shall be replaced as frequently as necessary.
- e) Individuals collecting milk shall ensure, prior to collection, that each producer's milk does not present obvious indications of spoilage or deterioration.
- f) Under no circumstances shall the rejected milk be mixed with good milk.
- g) Milk produced and collected 24 hours or more apart shall be collected and chilled separately to avoid undue raising of the temperature of the chilled milk in the cooler.

5.8.3 Storage of raw milk

- (a) Premises for the storage of milk shall be situated and constructed in such a manner as to avoid risk of contamination of milk or equipment.
- (b) Milk shall be stored in properly designed and maintained tanks or cans.
- (c) Storage temperatures and times shall be such that deterioration and spoilage of milk does not occur.

- (d) Milk shall be cooled to as low a temperature as possible, preferably to 4 °C but not more than 10 °C, in a plate chiller or by immersing the cans in a tank of chilled water passing over a surface cooler and stored below 10 A°C.
- (e) Milk shall be transported to the dairy as soon as possible preferably within 48 hours.
- (f) With consideration given to the end use of the milk, particularly for milk used in the production of raw milk products, special cooling requirements may be necessary to ensure that products do not present an unacceptable risk to the consumer.

5.9 Transport of milk

These principles and guidelines are supplemental to those set forth in Specification for Factory and Employee Requirements for Food Factories and to the general principles presented in Section 3 above.

5.9.1 Transport equipment

- (a) Milk transport tankers and cans and associated equipment shall be designed and constructed in accordance with appropriate standards to ensure complete drainage and avoid contamination of the milk.
- (b) Surfaces of milk transport tankers, cans and associated equipment intended to come into contact with milk shall be easy to clean and disinfect, corrosion resistant and not capable of transferring substances to the milk in such quantities as to present a health risk to the consumer.
- (c) Milk transport tankers and cans shall be used to transport only milk and milk products.
- (d) For milk tankers used for the transport of whey (lactoserum), precautions shall be taken to avoid contamination of subsequent loads of raw milk by bacteriophages.
- (e) Milk cans and transport tankers (including the raw milk discharge area, valves, etc.) shall be cleaned and disinfected after use to minimise or prevent contamination of milk.

5.9.2 Milk haulier (tanker driver or individual responsible for transport)

- (a) The milk haulier shall receive adequate training in the hygienic handling of milk and shall observe good personal hygiene.
- (b) Milk hauliers shall wear clean clothing and not have infectious or contagious diseases that would present a risk of contaminating milk.
- (c) Milk hauliers shall perform their duties in a sanitary manner so that their activities will not result in contamination of milk at the farm.
- (d) Milk hauliers shall not engage in practices that would lead to the contamination of milk or dairy processing areas when discharging the tanker.
- (e) Milk hauliers like other milk handlers shall have a certificate of medical fitness as in Clause 7.5.1

5.9.3 Transport time and temperature

5.9.3.1 Transport temperature and time shall be such that milk is transported to the dairy or to the collection centre without unnecessary delay and under conditions that prevent deterioration or spoilage of the milk.

5.9.3.2 The transportation conditions shall be such that the temperature shall not rise by more than 2 °c and the maximum temperature of milk shall not exceed 10 °c during transit.

5.9.3. Milk collected and transported under ambient conditions should preferably reach the destination within 4 hour of collection.

5.9.4 Transport procedure

- a) Milk shall be transferred under hygienic conditions to avoid contamination of milk.
- b) During transportation of milk cans from the farm and villages to the collection centre, adequate precautions shall be taken to ensure that the quality of milk remains the same.
- c) Cans shall be full to capacity and have well-fitting lids. The use of any other materials such as banana fibre to fix the lid is prohibited.
- d) The filled cans shall be adequately protected from sunshine. Rain and dirt shall not be allowed to come in contact with the inner portion of the can.
- e) Water from dripping vegetation or splashes on the road shall not be allowed to come in contact with cans.
- f) Vehicles that carry milk cans shall have no other material loaded on them.
- g) When road or rail tankers are used to carry milk, they shall be so designed that, violent agitation or surging in the tank shall be minimised to avoid breaking of bacterial clumps or alteration of fat globules or admixture of air during transport.
- h) All the hygienic practices for preservation of milk shall be borne in mind while using the tanker system for transporting milk.
- i) The edge of the manhole in the tanker shall be flanged upwards so as to prevent dripping into the tank when lid is lifted. A special cover has to be provided over the lid for protection from dust or dirt from the environment. Similarly, a cover shall be provided over any valve or hose connector.
- j) Tankers shall be so constructed as to be easy to clean and the design of tankers shall conform to best technical and hygienic standards. The cleaning and sanitation of the tankers shall be done at the end of each operation.
- k) The insulation material shall be of such quality that the temperature of milk shall not be allowed to rise by more than 2 °C during transportation.

6 Regulatory Controls

The safe production, handling, processing, storage, transportation, marketing, distribution and sale of milk and milk products shall be done in accordance with the relevant laws of Uganda.

The general hygienic requirements and practices to be followed by producers, handlers, processors, transporters, marketers, distributors and vendors have been translated into this Standard of practice as a cost effective tool for the control of Food Hygiene.

7 Dairy Establishment

The principles and guidelines laid down in this section are supplementary to those set forth in the Uganda Standard Specification for Factory and Employee Requirements for Food Factories (US EAS 39), the existing public health laws of Uganda and to the general principles presented in Section 4 above.

7.1 Location

The dairy shall preferably be situated in an open, clean, and healthy surroundings away from major or main roads, where lot of dust arises due to vehicular traffic, garbage dumps; animal sheds; open sewage drains or other places likely to breed flies or other pests. It shall be free from sources of obnoxious fumes, smoke, odours or excessive dust. There shall not be accumulation of trash, garbage or similar waste in the vicinity of the plant.

7.2 Premises

7.2.1 Structures housing the dairy shall be of suitable size, construction and design to facilitate maintenance and hygienic operations for processing purposes.

7.2.1 The material used in the construction shall be non-toxic and easy to clean and disinfect.

7.2.1 Areas where high levels of humidity or condensation regularly occur should preferably be painted with approved non-leaching fungicidal paint.

7.2.1 The building shall provide sufficient space for housing of equipment and storage of materials to enable hygienic operations.

7.2.1 No portion of building shall be used for domestic purposes or other types of food preparations unless separated by suitable partitions or locations or other effective means.

7.2.1 Processing Room

7.2.1.1 The processing room shall be sufficient in size for the work to be carried out under adequate hygienic conditions. The design and lay out shall be such as to minimise or eliminate contamination of raw materials and finished products.

7.2.1.2 The processing room shall have adequate protection against pests such as flies and rodents.

7.2.1.3 Adequate facilities for washing the room shall be provided. Adequate number of wash basins.

7

7.2.2. Air Quality and Ventilation

Adequate means of natural or mechanical ventilation shall be provided keeping in mind the number of workers, their hours of work and nature of operation to

(a) to prevent condensation and drippage

(b) minimise air-borne contamination of milk and milk products, for example, from aerosols and condensation droplets;

- (c) control ambient temperatures;
- (d) control odours which might affect the suitability of milk and milk products; and
- (e) control humidity, where necessary, to ensure the safety and suitability of milk and milk products and
- (f) Ventilation systems shall be designed and constructed so that air does not flow from contaminated areas to clean areas and be adequately maintained and cleaned.

7.2.3 Lighting

Adequate natural or artificial lighting shall be provided to enable the undertaking to operate in a hygienic manner. Lighting shall be such that the resulting colour of the product is not deceptive. The intensity shall be adequate to the nature of the operation. Lighting fixtures shall be protected to ensure that milk and milk products are not contaminated by breakages.

7.2.4 The Floor

The floors for work room, store room and go down shall be

- solid, waterproof, easy to clean and disinfect.
- suitably inclined to hasten rapid drainage of wash water and be connected to sewers or drains.
- be resistant to acids, alkalis or steam.

7.2.5 Walls and ceilings

Internal walls and ceilings shall have smooth, non-absorbent light-coloured surface preferably fungal resistant, free from crevices and sharp angles, to facilitate their efficient cleaning. The junction of the floor with the walls and the junction between the two walls shall be curved to prevent accumulation of dust.

7.2.6 Doors and windows

Doors shall be self-closing double doors, sliding doors or doors that open outwards.

The doors and windows shall be covered with fly proof wire gauge

The wall plate at the sills of windows shall be slanted downwards to avoid being used as storage places

Doors shall be flushed with corrosion resistant materials to prevent pest damage

7.2.7 Drainage

Effective drainage shall be provided to drain off a large quantity of water used for washing the machinery, equipment, furniture, floor, etc;

Circular drains of suitable construction shall be provided. Drains in processing rooms shall be covered with detachable covers.

Drains shall be kept clean and shall be provided with traps at suitable places before they are connected with the municipal drain to avoid blocking or choking. In the absence of any such arrangement, they shall be drained in soakage pits situated at least 3 metres from the dairy and the source of water supply.

The slope of the floor shall be towards the drains and the farthest end of the floor from the drain shall not be more than 5 metres. The drain openings shall be provided with screen traps to prevent solid matter from clogging the drains. The ends of the drains leading to the outside of the factory shall be made rodent proof by providing screens.

The screens shall be examined periodically and replaced or cleaned, if necessary. The drains shall have gully traps of seals of minimum 5 cm. At least 50 percent of the length of the drain shall be covered to facilitate the movement of trolleys. Mesh type cover for the drain shall be used to prevent habitation of cockroaches and rodents in closed areas of the drain.

7.3 Facilities

7.3.1 Water Supply

An adequate supply of potable water with appropriate facilities for its storage and distribution shall be available to ensure the safety and suitability of milk and milk products.

Potable water shall be as specified in the Uganda Standard specifications for potable water (US 201. Non-potable water (for use in, for example, fire control, steam production, refrigeration and other similar purposes where it would not contaminate milk and milk products), shall have a separate system. Non-potable water systems shall be identified and shall not connect with, or allow reflux into, potable water systems.

The water shall be periodically examined for chemical and bacteriological contamination as desired by the competent authority. A record of such examination shall be maintained.

7.3.2 Drainage and Waste Disposal

Adequate drainage and waste disposal systems and facilities shall be provided. They shall be designed and constructed so that the risk of contaminating milk and milk products or the potable water supply is avoided.

7.3.3 Cleaning

Adequate facilities, suitably designated, shall be provided for cleaning utensils and equipment. Such facilities shall have an adequate supply of hot and cold potable water.

7.3.4 Personnel Hygiene Facilities and Toilets

Personnel hygiene facilities shall be available to ensure that an appropriate degree of personal hygiene can be maintained to avoid contaminating milk and milk products. Such facilities shall be suitably located and designated and shall not open directly into workrooms.

Facilities shall include:

- a) adequate means of hygienically washing and drying hands, including wash basins and a supply of hot and cold (or suitably temperature controlled) water;

- b) ablutions of appropriate hygienic design; and
- c) adequate changing facilities for personnel.

7.3.5 Temperature Control

Adequate facilities shall be available for heating, cooling, refrigerating and freezing milk and milk products, for storing refrigerated or frozen milk and milk products, monitoring milk and milk products temperatures, and when necessary, controlling ambient temperatures to ensure the safety and suitability of milk and milk products.

7.3.6 Storage

Adequate facilities for the storage of materials and products shall be provided.

There shall be separate rooms for cleaning and maintenance materials.

7.3.7 Temporary facilities

Premises and structures mounted for temporal purposes shall be sited, designed and constructed to avoid as reasonably as practicable contaminating milk and milk products and harbouring pests.

7.4 Equipment

7.4.1 Plant and Equipment Hygiene

7.4.1.1 All surfaces coming into contact with the milk and milk products shall be smooth, free from pits, crevices and loose scale and shall be non-absorbent. Furthermore, the surface shall be non-toxic and unaffected by milk and milk products and cleaning compounds. The finish of corrosion-resistant surfaces (e.g. stainless steel, aluminium alloy, and tinned mild steel) shall be smooth.

7.4.1.2 All gasketing, materials shall be non-porous, non-absorbent, and fitted in a manner such as to prevent its protruding into the milk and milk products or creating, recesses or ledges between the gasket joints which will interfere with proper cleaning.

7.4.2 Installation of Equipment

- a) All equipment shall be installed on a foundation of durable, easy to clean material.
- b) Equipment shall be placed at least 45 cm from wall and ceiling, and sealed water-tight thereto. All portions of the equipment shall be installed sufficiently spaced above the floor on a minimum number of supporting members to provide access for inspection and cleaning, or be installed completely sealed (watertight) to the floor.
- c) Whenever equipment passes through walls or floors, it shall be sealed thereto or sufficient clearance shall be allowed to permit inspection, cleaning and maintenance.
- d) Where necessary, drains and catch pans shall be provided. These shall be of such dimensions as to collect all spill and drip, and readily accessible or readily removable for cleaning.
- e) Where pipes pass through ceilings into the floor of the processing area above, pipe sleeves shall be inserted in the floor above so that their upper periphery is at least 5 cm above the floor.

f) All electrical connections, such as switch boxes, control boxes, conduit and cables, shall be installed at least 45 cm away from the walls to facilitate cleaning, or be completely sealed to the equipment or wall.

g) All equipment coming into contact with milk and milk products shall be kept clean. An ample supply of steam and water, hose, brushes, detergents and other tools necessary for the proper cleaning of machinery and equipment shall be available.

h) Stores for spare parts of machinery and other materials that can be a source of contamination shall be kept separate from the processing areas.

7.4.3 Equipment Cleanliness

All equipment shall be kept clean.

The entire processing system shall be cleaned and sanitised at the close of operation and sterilised prior to use.

Bottles, pails, cans and other containers used to transport or store milk and milk products shall be kept clean and not used for any other purpose.

7.5 Dairy Personnel

7.5.1 Personnel health

7.5.1.1 People known or suspected to be suffering from, or be carriers of a disease or illness likely to be transmitted through milk and milk products, shall not be allowed to enter work areas if there is a likelihood of their contaminating the milk and milk products. Any person so affected shall report illness or symptoms to management.

7.5.1.2 An authorised registered medical practitioner shall medically examine every person employed in connection with milk or milk product handling. The examination shall include x-ray of the chest for tuberculosis, stool for protozoal and helminthic infestation for those parasites that are transmitted by ingestion, and for the presence of *Salmonella*, *Shigella* species and *Vibrio cholerae* and any other relevant tests. Subsequently, the employee shall be medically examined once in a year or more frequently; if necessary, to ensure that s/he is medically fit and free from communicable diseases. A record and certificate of such examination shall be maintained.

7.5.1.3 It shall be impressed on all employees that they shall notify the medical officer or management, cases of

- fever, vomiting, diarrhoea, typhoid, dysentery, boils, cuts and sores and ulcers (however small), discharging ears, eyes or nose and

- any notifiable diseases occurring in their own homes and families.

7.5.1.4 No staff who is suspected to be suffering from any of the disorders listed in (b) shall be permitted to work inside the dairy until certified free of such by a medical officer.

7.5.2 Personal Hygiene

a) Staff shall bathe regularly and wear clean clothes of easy to clean material and shall avoid the wearing loose jewellery, loose clothing or strong perfume during work.

b) Staff shall be provided with clean washable or disposable protective clothing (preferably white) including headgear which completely encloses the hair and the beard. No worker shall be allowed to work without proper protective clothing.

c) All cuts, sores and grazes shall be covered after treatment and the persons so affected shall not work in areas where there is direct contact with the milk or milk product

- d) Separate room or place for changing clothes shall be provided. The clothes shall not be hung in any processing room. Personal effects such as jewellery, watches, pins, or other items shall not be brought to the handling or processing area.
- e) Protective clothing shall be worn only within the working area (i.e. put on just before starting the work and changed when leaving).
- f) Staff shall keep their fingernails short and clean and wash their hands with soap or detergent and potable water before commencing work and after each absence, especially after using sanitary conveniences. Facilities for drying hands after washing shall be provided.
- g) Workers shall adopt strict hygienic practices so as to avoid contaminating milk and milk products.
- h) The supervisor shall check the personal hygiene of the workers before the start of work and whenever they enter any processing room after any absence.
- i) Staff shall not engage in any behaviour that may contaminate milk. Eating, spitting, nose cleaning or the use of tobacco in any form including smoking or chewing betel leaves shall be prohibited within the processing, packing and storage area of the dairy. Notice to this effect shall be prominently displayed and enforced.
- j) Sufficient and suitable sanitary and well lighted conveniences shall be provided, maintained and kept clean conveniently situated and accessible to workers at all times while they are at the dairy. Separate conveniences shall be provided for each sex. No convenience shall open directly into any workroom in the dairy. Sufficient number of wash basins with adequate provision of nailbrushes, soap and facilities for hand drying shall be installed in or alongside the sanitary conveniences.
- k) The importance of hygienic and aesthetic standards shall be inculcated to the personnel, since carelessness at any stage will endanger the health of the consumers.
- l) Visitors to handling or processing areas shall wear appropriate protective clothing and adhere to other personal hygiene provisions as given in this section.

7.6 Maintenance and Sanitation

7.6.1 General Dairy Hygiene

Establishment and equipment shall be kept in an appropriate state of repair and condition to facilitate all sanitation procedures, function as intended particularly at critical steps and prevent contamination of milk and milk products such as from metal chips, flaking plaster debris and chemicals. Whenever required, it may be lime washed, painted, disinfected, disinfested and deodorised. Chemicals used shall be those approved by Uganda National Bureau of Standards

Cleaning shall remove milk and milk product residues and dirt, which may be a source of contamination. Disinfection is necessary after cleaning especially product contact surfaces.

Cleaning chemicals shall be handled and used carefully and in accordance with manufacturers instructions and stored separate from milk and milk products in clearly identified containers to avoid the risk of contamination of milk and milk products. When pesticides are used, due care shall be exercised to prevent contamination of equipment, raw materials and packing materials. Under no circumstances shall these be used during processing.

On no account shall the process room be used or converted to a storeroom for raw materials or used as an eating room. Only the items required for processing on a particular day shall be kept in the process room. No

lavatory, sink, cesspool or garbage shall be so situated or maintained that odours or fumes therefrom pervade any room where the milk and milk products are stored or processed.

Premises shall be well lighted and ventilated. Special attention shall be given to equipment producing excessive heat, steam, obnoxious fumes or vapours. Good ventilation shall be provided and mould growth in overhead structures shall be prevented. Light bulbs and fixtures suspended above shall be of safety type.

7.6.2 Cleaning

The dairy floors, drains, walls and ceilings shall be regularly cleaned. Processing areas shall be kept as dry as possible.

Wet cleaning other than mopping shall not be used during the processing of milk and milk products in areas in which product is exposed and can be contaminated by aerosols.

Care shall be taken to adequately clean all product contact surfaces in sanitary piping and equipment, including difficult to clean areas such as by-pass valves, sample corks, and overflow siphons in fillers.

Waste and refuse shall be collected in covered receptacles and shall not be allowed to scatter on the floor of the unit. It shall be disposed of in a manner that is not detrimental to the hygiene of the surroundings of the disposal.

Adequate measures shall be taken to prevent mould growth on equipment and internal structures of processing and storage rooms.

Proper places shall be provided for storage of brooms, brushes, buckets and other cleaning gear.

Window glass and light fittings shall be maintained clean and dust-free at all times. There shall be no cobwebs in any part of the dairy

7.6.3 Cleaning Programmes

Cleaning and disinfection programmes shall ensure that all parts of the establishment are properly cleaned and shall include the cleaning of equipment.

Cleaning and disinfection programmes shall be

- Documented;
- continually and effectively monitored for their suitability and effectiveness; periodically verified by means such as audit, pre-operational inspections or microbiological sampling of environment and product contact surfaces;
- regularly reviewed and adapted to reflect changed circumstances; and
- supervised by competent person(s)

Where appropriate, programmes shall be drawn up in consultation with relevant specialist expert advisors.

A documented cleaning programme shall specify

- a) areas, items of equipment and utensils to be cleaned;
- b) responsibility for particular tasks;

- c) method and frequency of cleaning and
- d) monitoring arrangements to verify the adequacy of cleaning.

7.7 Pest Control Systems

7.7.1 General

Good hygiene practices shall be employed to avoid creating an environment conducive to pests. Good sanitation, inspection of incoming materials and good monitoring can minimise the likelihood of infestation and thereby limit the need for pesticides.

7.7.2 Preventing Access

Buildings shall be kept in good repair and condition to prevent pest access and to eliminate potential breeding sites. Holes, drains and other places where pests are likely to gain access shall be kept sealed. Wire mesh screens shall be used on open windows, doors and ventilators, to reduce the problem of pest entry. Animals shall not be allowed in the factory premises.

7.7.3 Harborage and Infestation

The availability of food and water encourages pest harbourage and infestation. Potential food sources shall be stored in pest-proof containers and/or stacked above the ground and away from walls. Areas both inside and outside milk and milk products premises shall be kept clean. Refuse shall be stored in covered, pest-proof containers.

7.7.4 Monitoring and Detection

Establishments and surrounding areas shall be regularly examined for evidence of infestation.

7.7.5 Eradication

Pest infestations shall be dealt with immediately and without adversely affecting milk and milk products safety or suitability. Treatment with chemical, physical or biological agents shall be carried out by a registered fumigator or applicator in a manner that does not pose a threat to the safety or suitability of milk and milk products.

7.8 Waste Management

Suitable provision must be made for the removal and storage of waste.

Waste shall not be allowed to accumulate in areas where milk and milk products are handled, or stored and in other working areas and the adjoining environment.

Waste stores must be kept clean and promptly emptied.

All plumbing and waste disposal lines shall be large enough to carry peak loads. All lines shall be water-tight and the waste disposal shall be effected in such a manner as not to cause contamination with potable water supplies.

The dairy effluents shall be disposed in a manner that is not detrimental to the hygiene of the dairy and its surroundings. The effluents shall not be let off on road or in the open outside the dairy premises.

If effluent is being treated on the site or close to the site, the effluent plant shall be located as far as possible down wind from the air intake points of the factory.

The effluent plant must be adequate in size to handle anticipated load both in terms of COD and BOD load and must be controlled to meet the requirements specified by the National Environmental Management Authority for treated effluents to avoid the risk of pollution.

8 control of operations

8.1 Control of Food Hazards

Milk and milk products safety hazards that can enter the processing facility by way of raw materials or those that can be introduced into the processing environment shall be properly identified and controlled so that products will obtain an acceptable level of protection.

Control measures shall be implemented to prevent, eliminate or reduce to acceptable levels, hazards that are reasonably likely to occur.

Microbiological as well as chemical and physical hazards shall be considered during the hazard analysis including the impact that primary production conditions have on the potential for hazards to be present in raw milk.

Control measures and control measure combinations used in the control of hazards shall be developed, validated, implemented and maintained within the context of HACCP principles (US 130).

8.2 Hygiene Control Systems

8.2.1 Temperature Control

Raw milk, intermediate products and end products covered by this standard shall be stored at appropriate temperatures and for appropriate times that will prevent the development of a milk and milk products safety hazard.

8.2.2 Microbiological cross contamination

Effective measures shall be taken to prevent contamination of products and intermediates from the processing environments or contact with materials from an earlier stage of the process.

The following basic principles shall be used to assist in the prevention of microbiological cross contamination of milk and milk products:

- **the flow forward in time and space principle:** the flow of the product and of the ingredients shall maintain a forward progression from raw material receipt to finished product packaging;
- **the absence of crossing principle:** the flow of contaminating materials shall not cross the flow of materials that shall not be contaminated. For example, the flow of the following elements: water, air, effluents, and raw milk, shall be carefully evaluated for suitability. The same principle shall be strictly applied to personnel flow.
- **the partition principle:** there shall be adequate separation of areas with different levels of contamination risk; and returned milk and milk products shall be well segregated and stored in a clearly designated area.

Where there is a risk of cross-contamination between end products and raw materials or intermediate products, consideration shall be given to a physical separation, such as by the application of barrier hygiene and wet/dry area segregation.

Where there is a risk of contamination from contaminated areas such as construction and rebuilding areas, consideration shall be given to a physical separation.

8.2.3 Physical and chemical contamination

Raw milk shall be excluded from processing if it contains residues of substances in amounts that may present a risk to human health as recommended by Codex Alimentarius Commission.

8.3 Incoming Material Requirements

8.3.1 General

- a) With consideration given to the end use of the incoming raw materials, raw materials shall not present an unacceptable risk to the consumer.
- b) No raw materials or ingredients shall be accepted if it is known to contain parasites, undesirable micro-organisms, pesticides, veterinary drugs, or toxic, decomposed or extraneous substances which would not be reduced to acceptable level by normal sorting and/or processing.
- c) Specifications for raw materials shall be identified and used.
- d) Raw materials shall be inspected and sorted before processing.
- e) Laboratory tests shall be carried out to establish fitness for use.
- f) Only sound, suitable raw materials shall be used.
- g) Stock of raw materials shall be subject to effective stock rotation.

8.3.2 Raw milk Reception

This is the key stage in regard to quality of milk.

- a) The milk reception room shall be separate from the processing room and it shall have a well-equipped laboratory for inspection and testing of milk supplies.
- b) The raw milk used for the manufacture of products covered by this Standard shall be evaluated based on sampling of milk from individual farms or milk collection centres.
- c) Rapid platform tests shall be performed on all samples of milk received.
- d) The milk received shall be subject to organoleptic, microbiological tests, as well as other measurements (e.g., temperature) to detect unacceptable conditions. Milk received for processing shall be fresh and free from off flavours or other defects and shall be of low bacterial count. It shall conform to Uganda specification for raw unprocessed whole milk. Depending upon the end use of the milk, particularly for milk used in the production of raw milk products, specific precautions shall be taken to ensure the product does not present an unacceptable health risk to the consumer.
- e) The raw milk shall be immediately cooled to 4°C or below if it is not to be processed immediately.

8.3.3 Water

- a) Where water is used as an ingredient it shall be potable water meeting the requirements of Uganda specifications for potable water (US EAS 12).
- b) Water coming into contact with milk and milk products and water used in ice making shall be potable water.
- c) Clean water may be used, provided it does not constitute a hazard to the milk and products, for steam generation, fire control and similar use and for chilling in milk and milk product handling areas.
- d) Water re-circulated for reuse shall be treated and maintained in such a condition that no risk to the safety and suitability of milk and milk product results from its use. The treatment process shall be effectively monitored. Re-circulated water which has received no further treatment and water recovered from processing of milk by evaporation or drying may be used, provided its use does not constitute a risk to the safety and suitability of milk and milk product.
- e) Ice and steam used in direct contact with milk and milk product contact surfaces shall be produced, handled and stored in such away as to protect them from contamination and not constitute a threat to the safety and suitability of milk and milk product.

8.4 Processing

The end product of processing in a dairy plant shall conform to the requirements laid down in the relevant product standard specifications to ensure the product does not present an unacceptable health risk to the consumer.

8.5 Packaging

Operations involving packaging of milk and milk products shall be done following sanitary practices and shall not result in contamination of the product.

8.6 Laboratory Control

The dairy quality control laboratory plays a vital role in checking the efficiency of milk processing. A well-equipped laboratory with competent quality control staff shall be employed to ensure an efficient operation of milk processing plant.

8.7 Management and Supervision

Managers and supervisors shall have enough knowledge of food hygiene principles and practices to be able to judge potential risks, take appropriate preventive and corrective action, and ensure that effective monitoring and supervision takes place.

8.8 Documentation and Records

8.8.1 Introduction

It is essential that records be maintained of all actions taken to assure the safety of milk and milk products. These records can be used to demonstrate that appropriate action has been taken to assure the safety of the milk and milk products. Appropriate records of processing, production and distribution shall be kept and retained for a period that exceeds the shelf-life of the product.

8.8.2 Requirements

- a) The manufacturer shall establish and maintain procedures for identification, collection, indexing, filing, storage, maintenance and disposition of hygiene records.
- b) Records shall be maintained for all actions, test results and other relevant information required to ensure that hygiene is maintained at an appropriate level to assure the safety of the milk and milk products produced.
- c) These records shall be indexed, filed, stored and maintained for a suitable period and procedures shall exist for the disposition of out of date records.
- d) All records shall be dated and signed by an appropriate person or persons.

8.8.3 Type of Records

To ensure the safety of milk and milk products, the following records shall be maintained

- a) A record of all critical parameters and tests carried out to assure the safety of the finished product, and the results of these tests, including microbiological results in accordance with Hazard Analysis and Critical Control Point system – HACCP (US 130)
- b) The calibration status and procedures used to calibrate all devices used to assure the safety of the finished product.
- c) Records showing that all staff members have been appropriately screened as suitable to work in food premises by a medical officer and that they are trained in the principles of hygiene.
- d) Records showing that the cleaning programme has been adhered to and that the strengths, temperatures and contact time of cleaning solutions complies with the specified requirements.
- e) Records showing that the factory has been inspected for evidence of infestation by rodents, birds, animals or insects at, at least quarterly, by a suitably qualified person.
- f) Records showing that incoming material has been inspected to ensure that only quality materials are used in the processing or manufacture of milk and milk products and that distribution vehicles have been inspected.
- g) Records showing that water storage vessels are inspected on a weekly basis for the presence of birds, rodents, and so on..

- h) Daily records of residual free chlorine levels and records of other water analysis.
- i) Records showing that a hygiene/housekeeping inspection has been carried out at defined intervals using a written checklist.
- j) Chemical, functional, microbiological and organoleptic specifications for raw materials, in process materials and finished product.
- k) Records of environmental tests.
- l) Records showing that the tubes in insect electrocuters are replaced at appropriate intervals.
- m) Records of controlled conditions such as temperature, relative humidity, controlled atmosphere and positive and negative air pressures and air quality during production, storage and distribution.
- n) Appropriate records for the effluent plant to show that treated effluent complies with specified requirements.
- o) Records showing that glass pipes, flow meters and glass equipment have been routinely inspected for cracks, splinters etc.
- p) Records showing that air filters have been inspected and replaced at appropriate intervals.
- q) Records of sensitivity checks on metal detectors.
- r) Where it is found that hygiene is not being maintained at the defined level, records shall be maintained of the corrective action taken, to bring it under control.
- s) Any other relevant records

8.9 Recall procedures

The establishment shall ensure effective procedures are in place to deal with any food safety hazard and to enable the complete, rapid recall of any implicated lot of the finished milk and milk products from the market. Where a product has been withdrawn because of an immediate health hazard, other products which are produced under similar conditions, and which may present a similar hazard to public health, shall be evaluated for safety and may need to be withdrawn. The need for public warnings shall be considered.

Recalled products shall be held under supervision until they are destroyed, used for purposes other than human consumption, determined to be safe for human consumption, or reprocessed in a manner to ensure their safety.

Adequate procedures shall also be in place to monitor the shelf life of products in the distribution system and to recall all expired products in a manner that does not harm the consumer.

8.10 Transportation

8.10.1 General

Milk and milk products may become contaminated, or may not reach its destination in a suitable condition for consumption, unless effective control measures are taken during transport, even where adequate hygiene control measures have been taken earlier in their handling and processing. Products must be adequately protected during transport.

Measures shall be taken where necessary to:

- a) protect milk and milk products from potential sources of contamination;
- b) protect milk and milk products from damage likely to render the milk and milk products unsuitable for consumption; and
- c) Provide an environment which effectively controls the growth of pathogenic or spoilage microorganisms and the production of toxins in milk and milk products.

8.10.2 Requirements

Conveyances and bulk containers shall be designed and constructed so that they:

- a) do not contaminate products or packaging;
- b) can be effectively cleaned and, where necessary, disinfected;
- c) permit effective separation of different milk or milk where necessary during transport;
- d) provide effective protection from contamination, including dust and fumes;
- e) can effectively maintain the temperature, humidity, atmosphere and other conditions necessary to protect milk and milk products from harmful or undesirable microbial growth and deterioration likely to render them unsuitable for consumption; and
- f) allow any necessary temperature, humidity and other conditions to be checked.

8.10.3 Use and Maintenance

Conveyances and containers for transporting milk or milk products shall be kept in an appropriate state of cleanliness, repair and condition.

In bulk transport containers and conveyances shall be designated and marked '**for Milk or Milk product use only**' and be used only for that purpose.

In the case of chilled products, the vehicle product compartment shall be cooled prior to loading and the product compartment shall be kept at an appropriate temperature at all times, including during unloading.

8.11 Product Information and Consumer Awareness

8.11.1 General

Products shall bear appropriate information to ensure that:

- adequate information is available and accessible to the next person in the food chain to enable them to handle, store, process, prepare and display the product safely and correctly;
- the lot or batch can be easily identified and recalled if necessary.

The processor shall provide consumers with enough knowledge to enable them to: -

- make informed choices appropriate to the individual; and
- prevent contamination and growth or survival of food borne pathogens by storing, preparing and using it correctly.

Information for industry or trade users shall be clearly distinguishable from consumer information, particularly on milk and milk products labels.

8.11.2 Labeling

Products shall be labelled in accordance with Uganda Standard Labelling Requirements for Pre-packaged Foods (US EAS 39). Unless the product is shelf stable, a statement regarding the need for refrigeration or freezing shall be included on the label of the product.

9 Sale of milk and milk products

9.1 Introduction

9.1.1 To facilitate the implementation of this standard of practice formation of milk vendor associations or co-operatives and Vendor Advisory Service shall be encouraged to provide a liaison point with the relevant authorities.

9.1.2 Vendor Associations shall provide a liaison point with the relevant authorities with a view to implement control measures.

9.1.3 Vendor Advisory Service shall provide advisors whose role would be:

advice, guide, train and monitor vendors to help them improve their operations in accordance with the requirements of this Standard;

- a) to inform consumers of the Hazards associated with different products and their responsibility in ensuring that this standard is adhered to while handling milk or milk products.

NOTE 1 It is recommended that advisors have good communication skills, familiar with the requirements of this standard, and have good understanding of both problems of the vendors and the protection of consumers.

NOTE 2 Advisors should possess the trust and respect of vendors, consumers and enforcement personnel

NOTE 3 The advisers should be as far as possible conversant with the General Principles of Food Hygiene laid down in the Uganda Standard for Factories and Employee requirements for food factories (US 28), and Guidelines for the

Application of the Hazard Analysis Critical Control Point System (HACCP) (US 130), in order to assist vendors to optimise the use of scarce resources

NOTE 4 Milk Vendor Advisory Services should be established with the necessary capacity to carry-out their mission effectively.

9.2 Licensing of Vendors

a) No vendor shall conduct his/her business of storage, display and sale of milk or milk products unless he/she is licensed under the relevant regulations.

b) In addition to the requirements laid down in the relevant Laws of Uganda, licensing of vendors shall be subject to the following:

(i) An authorised registered medical practitioner shall medically examine every person employed in connection with sale of milk or milk products in accordance with relevant regulations. Subsequently, the employee shall be medically examined once in a year or more frequently; if necessary, to ensure that s/he is medically fit and free from communicable diseases. A record and certificate of such examination shall be maintained.

(ii) No relevant authority shall issue or renew the license of any vendor who does not commit themselves to comply with all the requirements of this Standard of Practice within a determined period of time.

(iii) Milk and milk product vendors shall have basic knowledge in milk and milk products hygiene before they are licensed by relevant authorities.

9.3 Vending Establishments

Vending stalls or centres shall be established for the purpose of selling milk or milk products to ensure that public health is protected.

Stalls shall be located in areas designated by the relevant authorities and shall be suitable for the purpose of avoiding contamination of the milk or milk products sold at or from the stall.

Mobile vendors milk vendors shall operate in a similar manner to above.

Vendors' stalls shall be of a type approved by the relevant authority and shall be constructed from impervious materials that can be easily cleaned such as stainless steel, aluminium, glazed tiles or any other materials as approved by the relevant authority. It shall be properly constructed as to be readily cleaned and maintained in a good state of repair at all times.

9.3.1 Sanitation

a) **Water Supply:** Vendors shall ensure sufficient supply of potable water at all times. Where necessary, such as in the case of mobile vendors or where potable water supply is not yet available, potable water shall be stored in clean water containers.

b) **Waste Water Disposal:** Vendors' stalls shall have an efficient waste water disposal system which shall be maintained in a good state of repair. The system shall be large enough to carry peak loads and be provided with traps to ensure only liquid waste is discharged into the drain/sewer.

c) **Solid Waste Disposal:** Solid waste material shall be handled in such a manner as to avoid contamination of milk or milk products and/or potable water. Waste shall be removed from the working area of the stall as often as necessary and at least daily. All solid waste shall be disposed of in a sanitary manner, as recommended or approved by the relevant authority.

d) **Toilet facilities:** Milk vending centres shall have sufficient toilet facilities for each sex to accommodate the vendors, their employees and clientele, conveniently located but separate and apart from milk handling, storage, and selling areas to prevent contamination of the milk and milk products. The toilet facilities shall be approved and subject to all requirements for such facilities by the relevant authority.

9.3.2 Cleaning

All working surfaces, table tops, floors and surrounding areas shall be thoroughly cleaned at least daily, using one of the methods described below.

All utensils shall be regularly cleaned by

- thoroughly washing them in warm water containing adequate amount of soap or other suitable detergents and then either immersing them for one-half (1/2) minute in boiling clean water and draining them or, for two (2) minutes in potable water at a temperature of not less than 77°C and draining them.

- in the case where water at 77°C or water at boiling temperatures is not available, potable water, wash soap or detergent and running water rinse is allowed but is not preferred.

9.3.3 Pest and Animal Control

Every vendor shall at all times take appropriate measures to keep his/her stall free from animals and pests, including rodents, flies, insects or vermin infestation to prevent contamination of the milk and milk products by pests or pest control materials.

Any milk or milk product that has contaminated by pests or pest control materials shall be appropriately disposed of in a hygienic manner.

9.4 Appliances

The equipment, including containers for storing drinking water, shall be made of materials which do not transmit toxic substances, odour or taste, are not absorbent, are resistant to corrosion and capable of withstanding repeated cleaning and disinfecting.

Only containers made of food grade material, not previously used for non-food use, maintained in good state of cleanliness and repair shall be used.

Milk coolers, refrigerators and freezers shall not be overloaded and their temperatures shall be maintained at a maximum of 4 °C and –18 °C or below, respectively.

All washed and clean utensils shall be handled, stored or transported separately from unclean and used utensils and other sources of contamination such as vermin.

9.5 Health and Hygiene of Vendors

9.5.1 Health Status of Vendors

Any vendor or helper who is suffering from jaundice, diarrhoea, vomiting, fever, sore throat with fever, discharge from ear, eye and nose, visibly infected skin lesions (boils, cuts, etc.) shall cease from handling food in any capacity and seek medical treatment.

Any vendor or helper who has been identified as or is known to be or has previously been a carrier of food borne disease organisms, shall not be involved in any food handling activity until certified by a Medical Officer or any other medical practitioner as a non-carrier.

Any vendor or helper shall be required to be immunised against food and water borne disease such as typhoid, hepatitis A or any other food and water borne diseases as required by relevant authority.

9.5.2 Personal Hygiene and Behaviour

Every vendor or helper, during the conduct of his business, shall observe the following:

- a) Wear an identification tag if issued and required by the relevant authority.
- b) Dress in clean and proper attire.
- c) Wash hands thoroughly with soap and clean water before and after handling food, after visiting the toilet, after handling unsanitary articles, touching animals, touching raw food, after handling toxic and dangerous materials and as and when necessary.
- d) Finger nails shall be kept short and clean at all times.
- e) Hair shall be kept clean and tidy and shall be covered during operation.
- f) Non-infected cuts shall be completely protected by a waterproof dressing which is firmly secured and routinely changed.
- g) Shall not smoke or chew chewing gum while selling milk or milk products.
- h) Refrain from any unhygienic practices such as spitting and cleaning nose, ears or any other body opening or sore.
- i) Shall not sneeze or cough onto the milk or milk products.
- j) The use of gloves is not recommended.
- k) No vendor is allowed to use the stall as a sleeping or dwelling place, or for any other personal activity.

9.5.3 Training of Vendors

Training of vendors shall be undertaken as outlined in Clause 10.

9.6 Transportation of Milk or Milk products to the point of sale

Milk and milk products that require transportation to the point of sale shall be placed in a well protected, covered and clean container to avoid contamination

Any vehicle used in transporting Milk and milk products shall be clean and in good condition, appropriately equipped to provide protection from environmental contamination.

Milk and milk products shall not be transported together with other raw food and ingredients, animals, toxic substances and any other materials which may contaminate the milk or milk products.

9.7 Selling Milk and Milk Products

Every vendor shall observe the following:

All vendors purchasing milk or milk products for the purpose of serving or selling must assure that such milk or milk products is reliable sources.

Printed material shall preferably never be used to sell milk. Only food grade plastic and any other suitable material shall be used for packing and selling milk and milk products.

Never blow into plastic bags or containers used for handling milk or milk products.

All packaged processed milk offered for sale shall be dispensed only in their individual original sealed containers or from taps fitted to bulk containers and made of food grade plastic or other suitable material. Bulk containers shall be covered with tight fitting lids. **US 163:2000 26**

Direct sale of milk by farmers or milkmen shall be restricted to a fixed time and distance as follows

- within a distance of 5 Km from the point of production and distributed within 4 hours of milking in the morning and 2 hour in the afternoons.

- within a distance of 5 Km from the point of boiling and within 2 hours after boiling.

All unsold milk or milk products that cannot be properly preserved shall be disposed of in a sanitary manner at the end of the day.

10 Training

10.1 General

Training is fundamentally important to any food hygiene system. Inadequate hygiene training, and/or instruction and supervision of all people involved in milk and milk products related activities pose a potential threat to the safety of milk and milk products and its suitability for consumption.

Training is to be conducted by the relevant authority or other institutions recognised or approved by the relevant authorities.

10.2 Awareness and responsibilities

The producers, processors and traders shall:

- a) be aware of their role and responsibility in protecting milk and milk products from contamination or deterioration;

- b) impart the necessary knowledge and skills to all Milk and milk products handlers to enable them to handle milk and milk products hygienically; and
- c) ensure that those who handle strong cleaning chemicals or other potentially hazardous chemicals are instructed in safe handling techniques.

10.3 Training programs

10.3.1 Factors to take into account in assessing the level of training required include:

- a) the fact that milk and milk products can promote and sustain growth of pathogenic or spoilage micro-organisms-
- b) the manner in which the milk or milk product is handled and packed, including the probability of contamination;
- c) the extent and nature of processing or further preparation before final consumption;
- d) the conditions under which the milk or milk product will be stored; and
- e) the expected length of time before consumption.

10.3.2 Managers and supervisors of milk and milk products processes shall have the necessary knowledge of food hygiene principles and practices to be able to judge potential risks and take the necessary action to remedy deficiencies.

10.3.3 Every milk handler such as dairy staff, milk vendor or helper shall undergo a basic training in milk or milk products hygiene prior to hiring or licensing and further training as required by the relevant authority. Farmers shall also be given basic training in hygiene.

10.4 Refresher Training

Training programmes shall be routinely reviewed and updated where necessary. Systems shall be in place to ensure that milk and milk products handlers remain aware of all procedures necessary to maintain the safety and suitability of milk and milk products.

10.5 Monitoring

Relevant authority shall carry out periodic assessments of the effectiveness of training and instruction programmes, as well as routine supervision and checks to ensure that procedures are being carried out effectively. US 163:2000 27

Bibliography

- [1] CAC/RCP 1-1969, Rev. 3, 1997, Recommended International Standard Of Practice- General Principles Of Food Hygiene. Standardx Alimentarius commission.
- [2] IS 7005-1973, Standard for Hygienic Conditions for Production, Processing, Transportation and distribution of Milk. Indian Standards Institution.
- [3] IS. 3219:1990, Standard of practice for hygiene for Hygiene in the Food and Drink Manufacturing Industry. National Standards Authority of Ireland.
- [4] Guidelines for the design control measures for street vended foods in Africa CAC/DL 22-1997. Standardx Alimentarius commission
- [5] The Food and Drugs Act, Chapter 271, 1964, of the laws of Uganda.
- [6] The Public Health Act, Chapter 269, of the Laws of Uganda.

Certification marking

Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

The use of the UNBS Certification Mark is governed by the Standards Act, and the Regulations made thereunder. This mark can be used only by those licensed under the certification mark scheme operated by the Uganda National Bureau of Standards and in conjunction with the relevant Uganda Standard. The presence of this mark on a product or in relation to a product is an assurance that the goods comply with the requirements of that standard under a system of supervision, control and testing in accordance with the certification mark scheme of the Uganda National Bureau of Standards. UNBS marked products are continually checked by UNBS for conformity to that standard.

Further particulars of the terms and conditions of licensing may be obtained from the Director, Uganda National Bureau of Standards.



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