

DRAFT SAINT LUCIA CODE OF PRACTICE

DCP 20

CODE OF PRACTICE — EGGS AND EGG PRODUCTS — HYGIENE

Stage 40 – Enquiry Stage

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GENERAL STATEMENT

The Saint Lucia Bureau of Standards was established under the Standards Act (No. 14 of 1990) and started operations on 01 April 1991. A broad-based 15-member Standards Council directs the affairs of the Bureau.

The Standards Act gives the Bureau the responsibility to develop and promote standards and codes of practice for products and services for the protection of the health and safety of consumers and the environment as well as for industrial development in order to promote the enhancement of the economy of Saint Lucia. The Bureau develops standards through consultations with relevant interest groups. In accordance with the provisions of the Standards Act, public comment is invited on all draft standards before they are declared as Saint Lucia National Standards.

The Bureau also administers the Metrology Act No. 17 of 2000. This legislation gives the Bureau the responsibility to regulate all weights and measures and to manage and co-ordinate the metrication of Saint Lucia.

The Bureau operates a Product Certification Scheme applicable to all products for which national standards exist. If a product satisfies all the requirements for certification, a licence to carry the Saint Lucia Standard Mark is issued to the manufacturer of the product. The presence of the mark on a product indicates that the product conforms to all the requirements of a specific national standard and assures consistent quality (of the product) to the consumer.

The Bureau is a member body of the International Organisation for Standardisation (ISO), an affiliate member of the International Electrochemical Commission (IEC) and a member of the CARICOM Regional Organisation for Standards and Quality (CROSQ) and the Pan American Standards Commission (COPANT). The Bureau is the local agent for several foreign standards bodies such as the British Standards Institution (BSI) and the ASTM International (formerly known as the American Society for Testing and Materials). The Bureau serves as the enquiry point for the World Trade Organisation (WTO) on matters pertaining to the Technical Barriers to Trade (TBT) Agreement. The Bureau also serves as the National CODEX Alimentarius enquiry point with responsibility for coordinating national positions on CODEX matters.

In accordance with good practice for the adoption and application of standards, Saint Lucia National Standards are subject to review every five years. Suggestions for improvements are always welcomed at any time after publication of the standard.

CODE OF PRACTICE — EGGS AND EGG PRODUCTS — HYGIENE***AMENDMENTS ISSUED SINCE LAST PUBLICATION***

Amendment No.	Date of Issue	Type of Amendment	Text(s) Affected

DRAFT FOR PUBLIC COMMENT

ATTACHMENT PAGE FOR SLBS AMENDMENT SHEET

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CODE OF PRACTICE — EGGS AND EGG PRODUCTS — HYGIENE

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CODE OF PRACTICE — EGGS AND EGG PRODUCTS — HYGIENE

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Foreword

This national standard is newly adopted as part of the initiative to strengthen certification of select agricultural products, livestock and fish products in Saint Lucia. This national standard was approved by the Standards Council on....

This code of hygienic practice for eggs and egg products is aimed at encouraging the safe production of eggs and egg products for human consumption in Saint Lucia.

This code provides guidance to egg producers and processors on application of good hygienic and manufacturing practices which should be applied to ensure the safety and suitability of eggs and egg products.

This code focuses primarily on eggs produced from domesticated chickens. The principles may also be applied to the hygienic practices for egg production from other domesticated egg producing bird species.

The hygiene measures that are applied to the products described in this code, should take into account any further measures and food handling practices that are likely to be applied by the consumer.

In preparing this standard, assistance was derived from the following publications:

- Codex Alimentarius recommended international code of hygienic practice for egg products CAC/RCP 15-1976 (amended 1978, 1985)

1 Scope

This code of practice establishes guidelines:

- for the hygienic production, storage, packaging and transport of whole egg, egg albumen, egg yolk and other products consisting wholly or mainly of one or more of the constituents of egg, intended for human consumption; and
- on hygienic practice relating to premises, equipment and personnel used or engaged in the production of these products.

2 Normative references

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

- SLCP 1-1 *Code of practice for general principles of food hygiene - Part 1: Food production and processing*

3 Terms and definitions

For the purposes of this document the following terms and definitions apply.

3.1 competent authority

a Minister, Ministry, named government agency or agencies assigned, separately or jointly, the different areas of legal responsibility for regulating egg products

3.2 egg

whole eggs in the shell of domesticated chickens

3.3 egg products

the content of eggs, as whole egg or only the yolk or only egg albumen or a mixture of yolk and albumen in liquid, frozen or dried form, single or in combination with other foods or drinks to a minimum content of 50 % egg product

4 Primary production of eggs

4.1 Production practices

Only eggs derived from healthy stock shall be used in the production of egg products for human consumption.

4.2 Sanitary techniques

Eggs shall not be cleaned on the farm. If, exceptionally, they are cleaned on the farm, this shall be done only with the approval of the competent authority which will guide as to the method of cleaning employed, including the time/temperature conditions of any washing process and the detergents/disinfectants used.

Adequate precautions shall be taken to ensure that human and animal wastes are disposed of in such a manner as not to constitute a public health or hygienic hazard and extreme care shall be taken to protect eggs from contamination with these wastes, particularly those eggs that may be consumed without heat treatment.

Treatment with chemical, biological or physical agents shall be done only in accordance with the recommendations of the relevant competent authority; by or under the direct supervision of personnel with a thorough understanding of the hazards involved, including the possibilities of toxic residues being retained by the product.

5 Collection of eggs

Eggs should be collected as frequently as necessitated by the climatic conditions. The eggs should be handled as little as possible and rough handling should be avoided.

NOTE Collecting twice a day has been found satisfactory.

Throughout handling and storage it is essential that steps be taken to prevent:

- a) contamination of the shell with dirt, bedding materials or by animals, insects, vermin, birds, chemical or microbiological contaminants or other objectionable substances and;
- b) exposure to unfavourable temperatures.

Unfit eggs shall be segregated during collection to the fullest extent practicable, and shall be disposed of in such a place and such a manner as will prevent contamination of other eggs or water supplies.

6 Storage of eggs

6.1 Eggs shall be stored in a cool room to which they should be taken immediately after collection. They should:

- a) not be stacked or packed into boxes until they are cool, and the room should be kept free from strong smelling substances and odours;
- b) be stored at such a temperature and relative humidity as will minimize deterioration having regard to local climatic conditions. Temperatures of 5 °C to 9 °C (41 °F to 48.2 °F) and relative humidities of 70 % to 85 % have been found satisfactory.

NOTE Thin-shelled or hair-cracked eggs should be carefully handled and packed in a separate container to prevent breakage before delivery to the breaking plant.

6.2 Equipment and egg containers shall not constitute a hazard to health. Containers which are re-used shall be of such material and construction as will facilitate thorough cleaning, and shall be so cleaned and maintained as not to constitute a source of contamination to the product.

7 Processing and handling of in shell cracked eggs

7.1 In-shell cracked eggs on the farm

7.2 Thin-shelled or hair cracked eggs or cracked eggs with shell membranes intact should be carefully handled and packed in a separate container to prevent breakage before delivery to the designated processing facility.

If there is a danger that this type of egg will break during the transport to the processing facility the eggs may be broken on the farm.

7.2.1 Unwashed clean hair cracked eggs or unwashed clean cracked eggs with shell membranes intact may be broken on the farm.

7.2.2 Egg products collected on the farm may not be strained nor be separated into egg-yolk and egg-albumen.

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7.2.3 This egg product should be collected in clean and, if necessary, disinfected containers with suitable closures and should be chilled in accordance with subclause 9.4.3. This procedure should preferably be performed in a separate room. The room used for the operation should be in accordance with the plant facilities and operating requirements.

NOTE See Clause 8.

7.2.4 The egg products should be collected and transported from the farm where they are produced as soon as possible only to the egg product plant and transported at a temperature between 0 °C – 5 °C.

7.2.5 All measures should be taken to protect the product from contamination.

7.3 In-shell cracked eggs at the packing station

Handling of in-shell cracked eggs at the packing station shall be carried out in the same procedures as on the farm.

8 Plant facilities and operating requirements

8.1 Plant construction and layout

The building and surrounding area should be:

- a) kept reasonably free of objectionable odours, smoke, dust, or other contamination;
- b) of sufficient size for the purpose intended without crowding of equipment or personnel;
- c) of sound construction and kept in good repair;
- d) constructed to protect against the entrance and harbouring of insects or birds or vermin; and
- e) designed to permit easy and adequate cleaning.

The construction and layout of the processing premises should be such as to secure a regulated flow in the process from the arrival of the eggs at the premises to the finished product, and should provide for correct temperature conditions at all stages of the process.

8.2 Sanitary facilities and controls

Areas where eggs and other raw materials are received or stored should be so separated from areas in which final product preparation or packaging is conducted as to preclude contamination of the finished product.

Areas and compartments used for storage, manufacture or handling of edible products should be separate and distinct from those used for inedible materials.

The food handling area should be completely separated from any part of the premises used as living quarters.

Separate rooms should be provided for unpacking and washing of the eggs and for storing the finished product.

Candling, breaking, pasteurizing and filling should be so separated as to protect against cross-contamination.

8.3 Water supply

The water supply should be of potable quality. Standards of potability shall not be less than those contained in the latest edition of "Guidelines for drinking water quality", World Health Organization. There should be adequate supply of cold and hot water available based on processing needs.

8.4 Ice

Ice should be made from water of potable quality and should be manufactured, handled, stored and used, so as to protect it from contamination.

8.5 Auxiliary water supply

Where non-potable water is used - for such purposes as fire control - it shall be carried in completely separate lines, identified preferably by colour and with no cross-connection or back-siphonage with the lines carrying potable water.

8.6 Plumbing and waste disposal

All plumbing and waste disposal lines (including sewer systems) shall be large enough to carry peak loads.

All lines shall be watertight and have adequate traps and vents.

Disposal of waste should be effected in such a manner as not to permit contamination of potable water supplies.

The plumbing and the manner of waste disposal should be approved by the competent authority.

Drainage systems which include solid matter traps should be designed so as to allow them to be emptied.

When located within or immediately outside the plant, solid matter traps should be emptied and cleaned as necessary and in accordance with the requirements of the competent authority.

8.7 Lighting

Premises shall be well lit.

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Light bulbs and fixtures suspended over food in any step of preparation shall be of the safety type or otherwise protected to prevent food contamination in the case of breakage.

The illumination in any part of a workroom should be not less than 325 lux units, and at points requiring close examination of the product they should be illuminated at an intensity of not less than 540 lux units.

Reflector filaments should be designed to allow easy dismantling, cleaning, and reassembling.

8.8 Ventilation

Premises shall be well ventilated.

Special attention should be given to the venting of areas and equipment producing excessive heat, steam, obnoxious fumes or vapours or contaminating aerosols.

Ventilation shall be planned to allow for adequate changes of air and to ensure that the direction of air flow is never from a dirty area to a clean one.

NOTE Good ventilation is important to prevent condensation, which may drip into the product and mould growth in overhead structure, which may fall into the food.

8.9 Toilet-rooms and facilities

Adequate and convenient toilets shall be provided and toilet areas should be equipped with self-closing doors.

Toilet rooms shall be well lit and ventilated and should not open directly into a food handling area. They should be kept in a sanitary condition at all times.

There should be associated hand-washing facilities within the toilet area and notices should be posted requiring personnel to wash their hands after using the toilet.

Adequate male and female toilets shall be provided with signs indicating the separate male and female facilities.

8.10 Hand-washing facilities

Adequate and convenient facilities for employees to wash and dry their hands shall be provided wherever the process demands. They should be in full view of the processing floor.

Single-use towels are recommended, where practicable, but otherwise the method of drying should be approved by the competent authority.

The facilities shall be kept in a sanitary condition at all times.

8.11 Equipment and utensils

8.11.1 Materials

All food contact surfaces shall be smooth, free from pits, crevices and loose scale, non-toxic, unaffected by food products, capable of withstanding repeated exposure to normal cleaning, and non-absorbent unless the nature of a particular and otherwise acceptable process renders the use of a surface, such as wood, necessary.

8.11.2 Sanitary design, construction, and installation

Equipment and utensils shall be so designed and constructed as will prevent hygienic hazards and permit easy and thorough cleaning. Stationary equipment should be installed in such a manner as will permit easy and thorough cleaning.

Wooden equipment shall not be used in the breaking, pasteurizing, or filling rooms.

All pumps, pipes, vessels, and contact surfaces shall be of stainless steel or other approved material.

Shell eggs moving into the breaking room should be conveyed in containers constructed of stainless steel, aluminium, approved plastic material, or in single-use trays.

Breaking tables should be constructed of stainless steel, aluminium or plastic material. As far as practicable, plastic materials used for these purposes should be free from cracks and scratches and should be capable of withstanding the regular cleaning and disinfection process.

Machines and containers for liquid egg should be of stainless steel or other suitable material and should be so constructed as to permit the ready elimination from the liquid egg supply of all the egg contents that are unfit for further processing.

Any device for the separation of egg yolk from egg white should be of approved sanitary design and construction.

Equipment and utensils used for inedible or contaminated materials should be so identified and shall not be used for handling edible products.

8.12 General hygiene requirements for process control

In addition to SLCP 1 General food hygiene or any other approved food hygiene standard, general hygiene requirements for process control should include for example:

- a) water for cleaning and sanitising of a standard that is appropriate for the specific purpose, and used in a manner that does not directly or indirectly contaminate the egg;
- b) cleaning of facilities and equipment that involves disassembly where necessary, removal of all debris, rinsing of parts, application of an approved cleaner, repeat rinsing, reassembly, and further sanitizing and rinsing as appropriate;

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- c) handling and storage of containers and equipment in a way that minimises the potential for contamination of eggs;
- d) assembly of containers or cartons in rooms or areas where eggs may be present in such a manner that there is minimal possibility of contamination; and
- e) controlled access of personnel to processing areas.

8.13 Sanitary maintenance of plants, facilities and premises

8.13.1 The building, equipment, utensils and all other physical facilities of the plant should be kept in good repair and should be kept clean and maintained in an orderly, sanitary condition. Waste materials should be frequently removed from the working area during plant operation and adequate waste receptacles should be provided. Detergents and disinfectants employed shall be appropriate to the purpose and should be so used as to present no hazard to public health.

8.13.2 All equipment shall be cleaned and disinfected at all major breaks in work periods, whenever necessary to remove contamination, and at the end of the day's work. Disinfection shall also be carried out before commencement of the day's work. Steam condensate should not be allowed to remain in any equipment. Between disinfection and work periods equipment should be handled as little as possible.

8.13.3 Whenever the process is stopped for approximately 30 minutes or more all hand breaking equipment and easily removable parts of breaking machines shall be cleaned and disinfected. At the same time the surfaces of breaking tables shall be cleaned and liberally hosed with clean hot water at least 82.2 °C (180 °F).

8.13.4 Where "cleaning-in-place" is carried out and inspection at the end of the day indicates defective "cleaning-in-place" the equipment shall be dismantled and cleaned.

8.13.5 The final stage of cleaning and disinfecting shall be a thorough rinse with hot water at least 82.2 °C (180 °F) or more.

8.14 Disposal of waste material

Waste material, which includes empty shells and reject eggs, shall be stored in such a manner as not to cause a nuisance from offensive odours, insects, birds or vermin.

Waste shall be removed regularly and frequently, and at least at the end of the day, from processing rooms either by means of suitable containers, conveyor belts or water troughs. In addition it should be removed from the premises daily. If for any reason the garbage need to remain on premises for more than two to three days it shall be kept under cold storage not less than 4 °C (40 °F).

Immediately after emptying, receptacles and equipment used for storage and consolidation of waste material shall be cleaned and disinfected, as also shall the paved areas used for the storage of such waste receptacles.

8.15 Vermin control

Effective measures shall be taken to protect against the entrance into the premises and the harbourage on the premises of insects, rodents, birds or other vermin.

8.16 Exclusion of domestic animals

Dogs, cats and other domestic animals shall be excluded from areas where food is processed or stored.

8.17 Toxic substances

All rodenticides, fumigants, insecticides or other toxic substances shall be stored in separate locked rooms or cabinets away from food processing and food storage areas and handled only by properly trained personnel.

Toxic substances shall be used only by or under direct supervision of personnel with a thorough understanding of the hazards involved, including the possibility of contamination of the product.

8.18 Personnel hygiene and food handling practices

All persons working in a food plant shall maintain a high degree of personal cleanliness while on duty. Clothing, including suitable head-dress, shall be appropriate to the duties being performed and should be kept clean.

Hands shall be washed as often as necessary to conform to hygienic operating practices.

Spitting, eating, chewing and the use of tobacco shall be prohibited in food handling areas. All necessary precautions shall be taken to prevent the contamination of the food product or ingredients with any foreign substance.

Minor cuts and abrasions on the hands shall be appropriately treated and covered with a suitable waterproof dressing. Adequate first-aid facilities shall be provided to meet these contingencies so that there is no contamination of the food.

Gloves used in food handling shall be maintained in a clean, hygienic and sound condition; gloves shall be made of an impermeable material except where their usage would be inappropriate or incompatible with the work involved.

8.19 Personnel health

Plant management should advise personnel that any person afflicted with infected wounds, sores, or any illness, notably diarrhoea, shall immediately report to management.

Management shall take care to ensure that no person, while known to be affected with a disease capable of being transmitted through food, or known to be a carrier of such disease micro-organisms, or while afflicted with infected wounds, sores, or any illness, is permitted to work in any area of a food plant in a capacity in which there is a likelihood of such person contaminating food or food-contact surfaces with pathogenic organisms.

9 Operating practices and processing requirements

9.1 Eggs and other raw materials

No eggs or other raw materials should be accepted by the plant if they are known to contain toxic substances.

Eggs or other raw materials containing decomposed or extraneous material which will not be removed or reduced to acceptable levels by normal plant procedures of sorting or preparation shall not be accepted.

9.2 Storage and handling of shell eggs

On receipt at the plant, eggs should be processed as soon as possible.

Until they are processed, they shall be stored in their cases in a cool clean room. The temperatures and relative humidity mentioned in clause 6 is suitable. Cases shall be stored in such a way as to permit cleaning underneath.

Eggs should be unpacked in a room completely separated from the processing rooms.

Egg outer cases should not be taken into the breaking room.

9.3 Inspection and sorting

Eggs shall be candled before breaking, either at the plant or elsewhere if preferred, within a specified time approved by the competent authority.

Dirty eggs shall be cleaned before breaking out, using methods approved by the competent authority including the time/temperature conditions and any detergent/sanitizer used.

Cracked eggs with shell membranes intact shall be segregated in shallow containers constructed of suitable materials and shall be carefully examined by experienced breakers before processing.

Cracked eggs with shell membranes broken shall be dealt with as waste material, but if the breakage has occurred within the plant during candling or handling they should be segregated in a suitable receptacle used for this purpose only. Such eggs should be processed without delay.

Eggs shall be candled before being passed into the breaking area. Where breaking by crushing is used, special care is necessary during candling to eliminate defective eggs.

To avoid cross-contamination, eggs other than chicken eggs shall be segregated and handled and processed separately at the end of the day's processing of chicken eggs.

All equipment shall be cleaned and sanitized before the processing of chicken eggs is resumed.

9.4 Preparation and processing

9.4.1 Breaking

9.4.1.1 Breaking individually

Eggs should be broken either by hand or machine into cups or trays and each egg should be inspected for appearance and, if possible, for odour.

Egg substance having an abnormal odour or appearance shall be rejected and removed, together with any contaminated breaking equipment. Such equipment shall be cleaned and disinfected before being used again.

After touching rejected eggs, the breakers shall immediately wash their hands with odourless soap/detergent in hot water.

Separation of egg yolk from egg white shall be carried out in a hygienic manner.

Hygienic practices shall be observed for the removal of shell fragments, and, where customarily removed, for blood spots and meat spots.

After breaking, a centrifuge may be used to remove the last part of the egg albumen out of the egg shells, but only eggs that have been washed with the method described in Sub-section 9.4.1.2 may be centrifuged.

9.4.1.2 Breaking by crushing

Breaking by crushing should meet the following minimum requirements:

- a) bulk crushing machines used for breaking out eggs for the preparation of whole egg product shall be of a suitable type and be so constructed and operated as to prevent unfit eggs from entering the liquid egg product;
- b) eggs which have been washed prior to arrival at the breaking plant should not be used.;
- c) the eggs should be processed within 24 hours of candling, provided that where the eggs are held under controlled temperature conditions so as to retard spoilage and the growth of microorganisms, they may be held for a period not exceeding 72 hours without re-candling;
- d) the eggs should be conveyed on rollers of stainless steel or other suitable material through a hot water bath maintained at a minimum temperature of 60 °C (140 °F), rinsed under hot water sprays at a minimum temperature of 80 °C (177 °F) and afterwards air dried before being ejected on to a conveyor belt, constructed of suitable material, in the crushing section;
- e) the eggs should be crushed to remove their contents, after which all shell fragments should be removed from the conveyor belt. At the end of each day's work the

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machines shall be cleaned, scrubbed with a suitable disinfectant and rinsed with clean hot water at least 82.2 °C (180 °F).

9.4.2 Straining and collection

The liquid egg should be strained either by suitable strainers, centrifuges or other suitable equipment. If strainers are used a supply of clean disinfected stainless steel, monel, or other suitable strainers should be available to enable frequent changes to be made. If necessary, a clean, disinfected stainless steel or other suitable container should be used to collect liquid egg when strainers are being changed. This unstrained liquid egg should be returned immediately for straining.

9.4.3 Chilling

Where pasteurization does not immediately follow breaking, liquid egg products shall be chilled rapidly in equipment capable of reducing the product temperature 5 °C to 9 °C (41 °F to 48.2 °F).

If the product is to be stored before pasteurization, storage shall be in suitably insulated tanks for a period preferably not exceeding 24 hours and never exceeding 48 hours.

Liquid egg yolk may be held at a temperature not exceeding 10 °C (50 °F) if storage is not to exceed a period of 8 hours.

If it is intended to store liquid egg products for more than 48 hours, they shall be stored at temperatures below 0 °C (32 °F).

9.4.4 Pasteurization

Liquid egg products should preferably be pasteurised as part of a continuous process.

Egg products received from the farms or packing stations should be pasteurised in the plant.

All egg products shall be subjected to a treatment which will destroy *salmonella*.

The raw liquid whole egg shall be pasteurized by an approved process of heating at a temperature sufficiently high and for a time sufficiently long to ensure the destruction of *salmonella* organisms, for example at a temperature of 64 °C (148 °F) for at least 2½ minutes, or by other approved treatment which will give the same results.

NOTE The pasteurization of liquid albumen will, and liquid egg yolk may, require different time/temperature combinations.

On completion of pasteurization, all liquid products shall be immediately cooled to a temperature not exceeding 5 °C to 9 °C (41 °F to 48.2 °F).

NOTE 1 The plate pasteurizing apparatus should include such devices as may be necessary to ensure a constant rate of flow of liquid egg, thermostatic control of the heating of the liquid egg, and the automatic diversion of flow of any liquid egg not sufficiently heated.

NOTE 2 The batch pasteurizing apparatus should include thermostatic controls and also a stirring mechanism to mix the liquid egg to be pasteurized to ensure uniformity of temperature.

A continuous recording should be made of each pasteurization run, and charts showing pasteurization temperatures and times should be dated and kept available for inspection for at least five years.

Dried egg products processed from liquid egg which has not been pasteurized beforehand shall be subjected to an approved heat treatment process, for example the hot room process, in the dried form and preferably in the container, to destroy salmonellae.

The various products shall be protected from contamination at all stages after pasteurization.

9.4.5 Storage

Pasteurized liquid egg may be held in disinfected, insulated and covered tanks fitted with a low speed agitator and a thermometer, or in disinfected churns, provided that the temperature of the egg at 5 °C to 9 °C (41 °F to 48.2 °F) during the holding period.

Products which are sufficiently preserved to prevent deterioration, for example by salting or by sugaring, need not be chilled.

9.4.6 Drying

Glucose removal should, where applicable, be carried out prior to pasteurization by an approved method.

NOTE Drying should be carried out by an approved process. The drying plant used for the product should, where applicable, include a cyclone separation system in preference to the bag type separation.

The product should be continuously removed from the drying chamber, cooled, and packed as soon as possible into suitable containers. If the glucose has not been removed, the product should be stored at a temperature 5 °C to 9 °C (41 °F to 48.2 °F).

9.5 Packing, cooling and freezing

9.5.1.1 Empty containers shall be stored in a clean, dry place and kept free from dust, vermin, insects and any foreign matter. They shall: -

- not transmit to the product objectionable substances beyond limits set by the competent authority and provide appropriate protection from contamination;
- be inspected immediately before use to ensure they are in a clean and satisfactory condition; and
- where necessary prior to filling, be disinfected by steam, hot air, hot water, a disinfectant, or any combination of these, but the container shall be well drained before filling.

Only containers ready for immediate use shall be kept in the filling room.

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9.5.1.2 The filling of containers should be a continuous process. The filled containers shall be immediately sealed and taken either to the cooling room or to the freezing chamber without undue delay. Care should be taken during filling to avoid spillage and any excess egg should be removed.

9.5.1.3 Containers shall be stacked in these rooms so as to permit free circulation of air around the containers.

The rate of freezing should be sufficient to prevent deterioration of the product and be completed within 24 hours of filling. The chilled product should be stored at a temperature between 5 °C to 9 °C (41 °F to 48.2 °F).

9.5.1.4 After freezing, the product should be stored at a temperature which gives adequate protection to the product.

9.5.2 Defrosting of frozen egg products

When frozen egg products are being defrosted, they should be brought to their liquid state as quickly as possible without causing deterioration, but with as little increase of the temperature of the product above 0 °C (32 °F) as possible.

Defrosted egg products should be used immediately in its entirety and shall not be refrozen

9.5.3 Transportation

9.5.3.1 Conveyances for transporting eggs shall be adequate for the purpose intended and shall be of such material and construction as will permit thorough cleaning and shall be cleaned and maintained as not to constitute a source of contamination to the eggs.

9.5.3.2 All handling procedures shall prevent the eggs from being contaminated.

9.5.3.3 Eggs should be collected from the producers' premises and delivered to the processing plant as soon as possible, and be maintained during transport at such a temperature as will minimize deterioration having regard to climatic conditions.

9.5.4 Transportation of liquid egg products in bulk

9.5.4.1 Tanks or containers used for transporting liquid egg products shall be constructed of stainless steel or other suitable material, and be designed to facilitate cleaning and adequate drainage. They should be refrigerated or sufficiently insulated to maintain the egg product at a temperature 5 °C to 9 °C (41 °F to 48.2 °F) and preferably should not be used for any other purpose.

9.5.4.2 Pipes and connections used for the filling and discharge of the liquid egg products shall be of suitable design and materials and should be cleaned and disinfected after use, and disinfected before re-use.

9.5.4.3 Liquid egg products shall not be discharged from a road tanker or mobile container into a vessel containing liquid egg products from a previous delivery.

9.5.4.4 Tankers and mobile containers should be cleaned and disinfected as soon as practicable after emptying and disinfected before being re-filled. The final stage of cleaning and disinfecting should be a thorough rinse with hot water at least 82.2 °C (180 °F). Delivery of liquid egg products from the compartment of a tanker should be to one point only.

9.5.5 Marking of containers

All containers shall be so marked as to identify the place and date of manufacture of the product.

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Bibliography

1. Guidelines for Drinking Water Quality: Incorporating the First Addendum WHO, Geneva. WHO, 2017.

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