



EAST AFRICAN STANDARD

Animal casings — Specification



EAST AFRICAN COMMUNITY

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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Introduction

Animal casings are generally obtained from the intestines of sheep, goats, cattle and hogs, and are mainly used in the production of sausages and also for non-edible purposes, such as surgical sutures, guts for sports goods and strings for musical instruments. The process of manufacture of animal casings has been included in this standard as a guide (see Annex A). In view of the common trade practice, the term 'sheep casings' has been used in the standard to include goat casings also.

For the purpose of this Standard, the word 'shall' has been used to clearly indicate that the requirements are mandatory. Where 'should' is used requirements are considered not to be mandatory but strongly recommended.

In the preparation of this East African Standard, the following sources were consulted extensively:

IS 1981:1978(R2000), *Specification for Animal Casing*

Codex Alimentarius website: http://www.codexalimentarius.net/mrls/pestdes/jsp/pest_q-e.jsp

USDA Foreign Agricultural Service website: <http://www.mrlatabase.com>

USDA Agricultural Marketing Service website: <http://www.ams.usda.gov/AMSV1.0/Standards>

USDA Plant Inspectorate Service website: http://www.aphis.usda.gov/import_export/plants

European Union: http://ec.europa.eu/sanco_pesticides/public

Assistance derived from these sources is hereby acknowledged.

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Animal casings — Specification

1 Scope

This East African Standard specifies the requirements and the methods of sampling and test for animal casings derived from sheep, goats, cattle and hogs.

2 Normative references

The following referenced documents are indispensable for the application 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.

AOAC Official Method 931.06:1931, *Phosphorus (Total) (P_2O_5) in Eggs*

CAC/RCP 1, *Recommended international code of practice — General principles of food hygiene*

CD-K-670:2010, *Bovine (beef) meat — Carcasses and cuts*

CD-K-671:2010, *Caprine (goat) meat — Carcasses and cuts*

CD-K-672:2010, *Ovine (sheep) meat — Carcasses and cuts*

CD-K-673:2010, *Porcine (pig) meat — Carcasses and cuts*

CD-K-692:2010, *Mutton and goat meat canned in brine — Specification*

CD-K-675:2010, *Edible meat co-products*

CD-K-683:2010, *Smoked bacon — Specification*

CD-K-692:2010, *Mutton and goat meat canned in brine — Specification*

CD-K-693:2010, *Animal casings — Specification*

CD-K-697:2010, *Code of hygienic practice for meat*

CD-K-699:2010, *Veterinary drugs residues in foods — Maximum residue limits*

CD/K/700:2010, *Ante-mortem and post-mortem inspection of meat animals — Code of practice*

EAS 5, *Refined white sugar — Specification*

EAS 12, *Drinking (potable water) — Specification*

EAS 35, *Edible salt — Specification*

EAS 38, *Labelling of prepackaged foods — Specification*

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

EAS 41, *Fruits, vegetables and derived products — Sampling and methods of test*

EAS 103, *Schedule for permitted food additives*

EAS 123, *Distilled water — Specification*

- ISO 936, *Meat and meat products — Determination of total ash*
- ISO 937, *Meat and meat products — Determination of nitrogen content (Reference method)*
- ISO 1442, *Meat and meat products — Determination of moisture content (Reference method)*
- ISO 1443, *Meat and meat products — Determination of total fat content*
- ISO 1444, *Meat and meat products — Determination of free fat content*
- ISO 1736, *Dried milk and dried milk products — Determination of fat content — Gravimetric method (Reference method)*
- ISO 1737, *Evaporated milk and sweetened condensed milk — Determination of fat content — Gravimetric method (Reference method)*
- ISO 1841-1, *Meat and meat products — Determination of chloride content — Part 1: Volhard method*
- ISO 1841-2, *Meat and meat products — Determination of chloride content — Part 2: Potentiometric method*
- ISO 2294, *Meat and meat products — Determination of total phosphorus content (Reference method)*
- ISO 2917, *Meat and meat products — Measurement of pH — Reference method*
- ISO 2918, *Meat and meat products — Determination of nitrite content (Reference method)*
- ISO 3091, *Meat and meat products — Determination of nitrate content (Reference method)*
- ISO 3496, *Meat and meat products — Determination of hydroxyproline content*
- ISO 4134, *Meat and meat products — Determination of L-(+)- glutamic acid content — Reference method*
- ISO 4831, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of coliforms — Most probable number technique*
- ISO 4832, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*
- ISO 4833, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony-count technique at 30 degrees C*
- ISO 5537, *Dried milk — Determination of moisture content (Reference method)*
- ISO 5553, *Meat and meat products — Detection of polyphosphates*
- ISO 5554, *Meat products — Determination of starch content (Reference method)*
- ISO 5985, *Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid*
- ISO 6491, *Animal feeding stuffs — Determination of phosphorus content — Spectrometric method*
- ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp.*
- ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

ISO 8156, *Dried milk and dried milk products — Determination of insolubility index*

ISO 9390, *Water quality — Determination of borate — Spectrometric method using azomethine-H*

ISO 13493, *Meat and meat products — Determination of chloramphenicol content — Method using liquid chromatography*

ISO 13496, *Meat and meat products — Detection of colouring agents — Method using thin-layer chromatography*

ISO 13730, *Meat and meat products — Determination of total phosphorus content — Spectrometric method*

ISO 13965, *Meat and meat products — Determination of starch and glucose contents — Enzymatic method*

ISO 21527-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 1: Colony count technique in products with water activity greater than 0.95*

ISO 21527-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0.95*

3 Definitions and presentation

3.1 Definitions

In this Standard, the meaning of the words and phrases set down below apply throughout the Standard, unless the context otherwise requires.

3.1.1

abattoir

a premises processing animals for the production of meat for human consumption

3.1.2

black node

black node usually caused by the residue of the ingesta or slime left behind in the casing

3.1.3

calibration

- (a) Measurement of the diameter of the casing in the case of wet-salted casings;
- (b) Flat measure (half circumference) in the case of dried casings; and
- (c) Measurement of the diameter of the casings after their treatment with water for at least fifteen minutes in the case of dry ready-to-wet casings of sheep and goats. The diameter is found out by inflating the casing with air or water and measuring the diameter by means of suitable calibration frames after properly stretching out the casing wall and taking the mean of several readings.

3.1.4

cattle

includes bull, cow, ox, heifer, calf, steer, bullock and buffalo

3.1.5

cattle casing

Includes the following:

- a) **Fat end** —The terminal end of the large intestine measuring about 1.5 m in length from the anus.

- b) Middle — Remaining part of the large intestine.
- c) Bung — Caecal part of the intestine. I
- d) Runner — Small intestine.
- e) Urinary Bladder
- f) Weasand — Gullet or oesophagus.

3.1.6

cicatrix

scar of healed-up wound

3.1.7

domestic

small grease spot in the casing

3.1.8

contamination

the presence of objectional matter, including substances or microorganisms, that make meat unwholesome

3.1.9

green runners

the runners after stripping of ingesta

3.1.10

kink

twisted loop in the casing

3.1.11

natural casings

the sub-mucosal layer of intestines obtained from green runners after cleaning and placing in a preservative

3.1.12

nodule

small rounded structure

3.1.13

potable

water quality that is consistent with standards for drinking water in compliance with EAS 12

3.1.14

rings and hanks

bundles of casings. These shall be as follows:

- a) **Rings of sheep and goat casings** — A ring shall contain not more than 4 pieces and shall measure at least 21 m in length, no single piece measuring less than 1.5 m.
- b) **Rings of hog casings** — A ring shall contain not more than 4 pieces and shall measure at least 9 m, no single piece measuring less than 1 m.
- c) **Hanks of sheep or goat casings** — A hank shall consist of not more than 18 pieces and shall measure at least 92 m in length.
- d) **Rings, hanks or cocoons of dry ready-to-wet casings of sheep and goats** — May be made up of several pieces joined together with adhesive and other approved materials; each single piece shall measure not less than 1.5 m.

e) **Hanks of cattle casings** —The minimum length of a hank shall measure as follows:

Dried runners	180 m
Dried middles	90 m or a packet of 25 m
Salted runners	30 m
Salted middles	18 m

No single piece shall measure less than 1 m.

**3.1.15
runner**

Emptied intestines not processed beyond loosening of the submucosal layer from the surrounding layers of intestinal tissue.

**3.1.16
rust**

black spots caused by putrefaction due to bacterial or fungal action

**3.1.17
sanitise**

Apply approved chemical and/or physical agents or processes to minimise the risk of contamination of meat by micro-organisms.

**3.1.18
Salt Burn**

Areas of discolouration generally caused by: (a) the entry of air-into tin containers in which the casings are packed, and/or (b) by the use of poor quality salt.

**3.1.19
Sterilise**

In relation to equipment or utensils used in the handling of natural casings, cleaned and immersed in water heated to 82°C or warmer until sterilisation is effected, or treated by other effective means. For the purpose of this Standard it means 'make commercially sterile'.

**3.1.20
wholesome**

Means:

- will not cause food-borne infection or intoxication when properly handled and prepared for its intended use; and
- does not contain chemical residues in excess of established limits; and
- is free from obvious physical contamination; and
- is free from defects recognised as unsafe to consumers; and
- is produced under adequate hygiene control.

3.2 Types

The casings shall be of the following types:

- Sheep casing (including goat casing);
- Cattle casing (dried cattle casing and salted cattle casing);
- Hog casing; and

- d) Dry ready-to-wet casings of sheep, goats and cattle.

4 Grades

There shall be three grades for sheep casings, namely, Prime Quality (PQ) or Grade 1, Grade 2 and Grade 3; and four grades for cattle casings, namely, Prime Quality (PQ), Grade 1, Grade 2 and Grade 3 (shorts).

5 Requirements

5.1 General

5.1.1 The casings shall be obtained from healthy animals slaughtered in licensed premises and subjected to ante-mortem and post-mortem inspection according to the procedure prescribed in CD/K/700:2010. The casings shall be prepared under hygienic conditions and shall be wholesome and otherwise fit for human consumption.

5.1.2 Quality of water used for processing shall conform to EAS 12.

5.1.3 Evisceration techniques shall minimise spillage of gut contents and any spillage shall be promptly washed off.

5.1.4 Runners should only be collected after postmortem inspection has been completed.

5.1.5 Runners shall not be obtained from grossly contaminated intestines.

5.1.6 Runners shall be collected, handled and stored in sealed containers separate from edible meat until further processing renders them suitable for human consumption.

5.1.7 The method used for processing runners shall ensure that the green runners have been handled in a manner which protects them from contamination and deterioration.

5.1.8 Containers of runners leaving abattoirs or processing premises shall be labelled in accordance with State requirements and, when relevant, details of the preservatives used.

5.1.9 Where required, consignments of runners should be accompanied by a fully completed meat transfer certificate/public health certificate.

5.1.10 Processing of intestines into green runners

Consistent, routine processing, storage and transportation procedures that minimise or eliminate risk of contamination of natural casings.

- (a) Treatment of intestines for processing into green runners shall be commenced immediately after evisceration.
- (b) Runners shall be removed from the crown fat by pulling, either by hand or machine. Ingesta contents may be stripped from the runners by hand or machine. Runners shall be stripped directly into clean wash tubs or trolleys containing cold potable running water which is constantly renewed. Water temperature should be 5° C or colder.
- (c) Stripped crowns shall be removed from the runner rooms promptly, with or without the bung (caecum) attached. Bungs shall be washed to remove visible contamination.
- (d) Operatives shall wash their hands and equipment as often as necessary to maintain hygienic conditions. The stripping room shall be kept clean.
- (e) Containers used to store runners shall be durable, sealed and maintained in a hygienic condition.

- (f) Green runners shall be chilled to a temperature of 5° C or colder with a minimum of delay after collection unless, as part of the collection process, they are preserved with an approved food preservative.

5.1.11 Processing green runners into casings

Hygienic controls are in place to prevent physical and microbiological contamination of product

- (a) Equipment used for processing shall be maintained in a clean and sanitised condition.
- (b) Green runners shall be cleaned so that all ingesta and mucosa are removed.
- (c) Green runners shall be placed into clean tanks containing potable water until further processing. Approved additives may be placed in the soak tanks to assist in preserving or softening runners during the cleaning process.

5.1.12 Treatment of natural casings

Controls are used to ensure product is maintained in a wholesome condition.

- (a) Preservation of natural casings shall be achieved by using approved preservatives.
- (b) Finished casings shall be stored under hygienic conditions in clean, sanitised containers with close fitting lids.

5.1.13 Transportation of green runners

Controls are in place to ensure public health is not jeopardized

- (a) Runners shall be transported in durable, sealed containers. Containers shall be maintained in a clean and hygienic condition,
- (b) Runners shall be chilled to a temperature of 5 °C or colder before transport and maintained at that temperature during transport. A refrigerated vehicle shall be used if this temperature cannot otherwise be maintained.

5.2 Description

5.2.1 The casings shall be of uniform natural colour and shall be free from defects like holes, blisters, lacerations, nodules and cicatrices.

5.2.2 The casing wall shall be free from any parasitic infestation and from scars of healed-up wounds.

5.2.3 The casings shall be free from domestics, black nodes, slime, mucus and dung.

5.2.4 The casings shall be free from moulds or fungus infestation.

5.2.5 The casings shall be free from salt burns and rust.

5.3 Preservatives

Preservatives other than common salt shall not be used. The common salt used shall be of edible quality (see EAS 35).

5.4 Individual requirements

5.4.1 Sheep casings

5.4.1.1 Sheep casings, Grade Prime Quality (PQ) or Grade 1:

- a) **Colour** — The casing shall be of natural colour throughout without any discolouration.
- b) **Wall** — The casing wall shall be intact and not torn or lacerated.
- c) **Strength** — The casing shall not burst when filled with air or water to its normal capacity and slightly pressed.
- d) **Calibration** — The calibration may be even, for example, 12 to 14 mm, 14 to 16 mm, etc, up to 26 mm; or it may be odd, for example, 13 to 15 mm, 15 to 17 mm, etc, up to 27 mm as agreed to between the purchaser and the vendor.
- e) **Assembly** — The calibrated casings may be tied in rings or hanks as agreed to between the purchaser and the vendor.
- f) **Curing** — The rings or hanks shall be cured properly with common salt (see EAS 35).

5.4.1.2 Sheep casings, grade 2 — If the casings do not satisfy the requirements for Grade Prime Quality (PQ) in respect of colour, strength and pin holes on walls which shall not exceed 2 in a metre, but are otherwise deemed fit for use in the preparation of sausages, the casings shall be classed as Grade 2.

5.4.1.3 Sheep casings grade 3 — This grade shall be the same as Grade 2 except that the presence of nodules may be permitted.

5.4.2 Cattle casings

5.4.2.1 Dried cattle casings (runners and middles)

- a) **Grade Prime Quality (PQ)** — The casing shall be of uniform natural colour, lustrous throughout without any spot or mark and free from discolouration. The casing wall shall be intact, free from any tear or laceration and shall be perfectly rolled. The casings shall also be free from salt burns, rust, domestic, black nodes, slime, mucus, dung, mould or fungus infestation, nodules and cicatrices.
- b) **Grade 1** — The requirements for this grade shall be the same as for Grade Prime Quality (PQ) except that a slight deviation in colour and folds and a few black nodes may be permitted. Total fat streaks shall not exceed 40 per metre; a streak of fat shall not exceed 30 mm in length and 10 mm in breadth. The middle of the seam shall be free from fat streaks.
- c) **Grade 2** — Casings not properly rolled or having larger black nodes or rough texture and a few streaks of fat not exceeding 60 in a metre shall be classed in this grade.
- d) **Grade 3 (Shorts)** — This grade shall include short pieces of any or all of the above grades and/or having fat streaks in excess of 60 in a metre.
- e) **Calibration** — The calibration for dried runners and middles shall be 35 mm and below, 35 to 40 mm, 40 to 45 mm and so on up to 60 mm; or 35 to 37 mm, 37 to 39 mm, 39 to 41 mm and so on up to 60 mm; or as agreed to between the purchaser and the vendor.

5.4.2.2 Salted cattle casings (runners and middles)

- a) The requirements for colour and wall shall be as for Grade Prime Quality of dried cattle casings (see 5.4.2.1).
- b) **Strength** — On being inflated with air and rolled round the finger and pressed, the casings should burst with a sharp sound.

- c) Calibration — The calibration shall be 28 to 30 mm, 30 to 32 mm and so on up to 40 mm and above by diameter, or as agreed to between the purchaser and the vendor.

5.4.3 Dry ready-to-wet casings — Requirements for PQ, Grade 1, Grade 2 and Grade 3 dry ready-to-wet casings shall be the same as for sheep casings of Prime Quality, Grade 1, Grade 2 and Grade 3 respectively.

5.4.4 Hog casings — Requirements for hog casings shall be the same as for sheep casing of Prime Quality, except that the calibration shall be 24 to 26 mm, 26 to 28 mm, 28 to 30 mm and so on; or as agreed to between the purchaser and the vendor.

6 Packing, marking and transportation of animal casings

6.1 Packing

Unless agreed otherwise between the purchaser and the vendor, the rings or hanks of the casings shall be packed in suitable containers lined with polyethylene. Casings of only one type shall be packed in a lot.

6.2 Marking

6.2.1 Each container shall be marked with the following information:

- a) Name, type and grade of the material;
- b) Name of the manufacturer;
- c) Batch or code number;
- d) Calibration;
- e) Number of hanks or rings; and
- f) Date of paclung.

6.2.2 Each container may also be marked with a Certification Mark.

6.3 Transportation

6.3.1 Outcome required — Transportation is conducted in a manner that does not jeopardize the wholesomeness of the product

6.3.2 Natural casings shall be transported in sealed, durable containers, which are maintained in a clean and hygienic condition.

6.3.3 Natural casings shall be transported in a vehicle that is maintained in a clean and hygienic condition.

6.3.4 Natural casings shall be transported at a temperature which ensures the integrity of the product is maintained.

7 Sampling

Representative samples of the material for tests shall be drawn as prescribed in Annex B.

8 Tests

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Shake the test sample (see B.2.4) free of salt and soak in water for about an hour. Measure the lengths and inflate the casings with water or air and check the diameter and defects, like holes, punctures, pimples, etc. Also carry out the test for strength [see 5.4.1.1(c) and 5.4.2.2(c)].

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Annex A (normative)

Processing of animal casings

A.1 General method

A.1.1 While the slaughtered animal is being dressed, the viscera is removed in such a way that it does not get contaminated with the intestinal refuse. Immediately after the removal of the stomach, the intestines along with the peritoneal and mesenteric covering are sent to the gut and tripe room. The intestines are then separated from their mesenteric attachments by easy pulls. Before disengaging the intestines from their attachments, it may be advantageous to put the intestines along with the peritoneal and mesenteric covering in barrels with crushed ice or ice-cold water till the fat surrounding the guts sets. This step might make it easier to pull the intestines from their attachments without much damage. After the removal of the intestines from their attachments, the contents of the intestines should be stripped off by uniformly gentle pressing and by drawing the gut between the fingers. The guts should then be washed thoroughly by flushing with tap water at full pressure. The guts are then taken to the casings factory in barrels packed with crushed ice.

A.1.2 In the casings factory, the guts are given a thorough rinse in ordinary tap water after allowing to remain for some time so that the chill due to packing in ice is taken off, if processed immediately. Otherwise, the guts are kept in wooden barrels in ice-cold water overnight. Next morning, they are processed. All adhering fat and tissue are removed with knife or scissors. Defatting of the guts with such mechanical implements does not completely remove the fat in the case of cattle casings. In such case, the guts should be treated with warm water at 35 to 40°C and the fat so loosened trimmed off. The guts are then completely washed in ordinary water.

A.1.3 The next step is to remove the mucus and slime. For this purpose implements with smooth surface should be used. In the case of cattle casings, the guts are turned inside out and the mucus and slime are removed by scraping with smooth-edged implements. Care should be taken not to lacerate the casing wall. Complete removal of slime and mucus is very important as these affect the appearance and shine of the wall. Complete removal of the slime and mucus gives a bright and whiter appearance to the casing.

A.1.4 During washing with water, all the holes and other defects, such as blisters, pimples, etc, should be detected and preliminary assortment of the guts should be done. In the case of cattle casings, this is done at the time of inflation with air.

A.1.5 In the case of dried cattle casings, the next step is the inflation of the guts with air and drying. The air should be blown by mechanical means and care should be taken to blow air in such a manner that the gut spreads out fully and expands evenly. It should not be too tense nor should it leave any folds or kinks in the gut. Correct blowing is very important as it influences calibration.

A.1.6 Drying of casings in shaded places should be preferred to the direct hot sun as the former facilitates gradual and uniform drying. When the casings are subjected to direct hot sun, the superficial layer dries and contracts before the internal layers are properly dried. This reduces the keeping quality. If the casings are left too long in the sun, the surface gets too dark and the colour is affected.

A.1.7 After the casings are dried, the air is expelled by pressing the guts between rollers. Metal rollers with smooth, even and exacting surfaces should be used. While pressing the guts between the rollers, care should be taken to see that uniform pressure is applied at all the points of the exacting surfaces of the rollers, so that the gut is pressed evenly and it spreads properly.

A.1.8 While feeding the gut, to the pressing machine, the gut should be led dorso-ventrally to the pressing surfaces and the gut should be at right angles to the surface. This will facilitate the formation

of fine, uniform marbling lines in the gut wall (dorsal part). If it is not led at right angles to the surface, folds and kinks would form in the gut wall.

A.1.9 Calibration of the casings should be done between the dorsoventral points. If there are wrinkles, overlappings or folds in the casing wall, these should be spread out properly before measuring and the mean of several readings should be taken.

A.1.10 The calibrated casings should be graded and assorted and prepared in rings or hanks. In damp atmosphere and on rainy days, a further step for thorough dehydration should be taken. The casings may be hung up in a hall in rows one above the other and hot air passed through. Charcoal fire should be avoided as the smoke, even in traces, darkens the casing wall.

A.1.11 Sheep casings are packed wet. After they are cleaned as described in A.1.3, they are calibrated and assorted in different grades. Rings or hanks are prepared and these are stuffed with common salt and allowed to remain for at least 3 to 4 days after which they are taken out, cleared of excess salt and packed in wooden barrels with layers of common salt.

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Annex B (normative)

Sampling of animal casings

B.1 General requirements of sampling

B.1.0 In drawing, storing and handling samples, the following precautions and directions shall be observed.

B.1.1 Samples shall be taken in a protected place not exposed to dust or soot.

B.1.2 Samples shall be protected from adventitious contamination.

B.1.3 The sample containers shall be sealed air-tight after filling and marked with full details of sampling, date of sampling, batch or code number, name of manufacturer and other important particulars of the consignment.

B.1.4 The samples shall be stored in such a manner that there is no deterioration of the material.

B.1.5 Sampling shall be done by a person agreed to between the purchaser and the vendor and if desired, in the presence of the purchaser (or his representative) and the vendor (or his representative).

B.2 Scale of sampling

B.2.1 Lot — In any consignment, all the containers of the same size and from the same batch of manufacture, shall be grouped together to constitute a lot.

B.2.1.1 Samples shall be tested for each lot for ascertaining the conformity of the material with the requirements of this standard.

B.2.2 The number of containers to be selected from each lot shall be in accordance with col 1 and 2 of Table 1.

Table 1 — Number of containers to be selected from a lot

Number of containers in the lot <i>N</i>	Number of containers to be selected <i>n</i>
(1)	(2)
2 to 15	2
16 to 40	3
41 to 65	4
66 to 110	7
Above 250	10

B.2.3 The containers shall be selected at random. In order to ensure the randomness of selection, a random number table shall be used. In case such tables are not available, the following procedure may be adopted:

Starting from any container, count them as 1, 2, 3,, up to r and so on in a systematic manner and withdraw every r th container, r being the integral part of N/n .

where

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N = total number of containers, and
 n = number of containers to be selected (see Table 1)

Every r th container thus counted shall be separated until the requisite number of containers is obtained from the lot to give samples for test.

B.2.4 Test samples — From each of the containers selected as in B.2.2 and B.2.3, draw at random from different parts of the same container, at least one percent of the total number of hanks or rings packed in it. This shall constitute the test sample for that particular container and shall be tested for the requirements prescribed in 5.

B.3 Criterion for conformity

B.3.1 A lot shall be considered as conforming to the requirements of this standard if all the samples tested satisfy the requirements prescribed for the various characteristics in Clause 5.

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