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Edible natural casings — Sausages — Specification



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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 Codex 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 12, [Meat, poultry and processed products].

This the first edition (US 1866:2018), which has been technically developed.

Introduction

Natural casings are made from the sub-mucosa, a layer of the intestine that consists mainly of naturally occurring collagen. Collagen natural casings are derived from the intestinal tract of farmed animals, are edible and bear a close resemblance to the original intestine after processing. The outer fat and the inner mucosa lining are removed during processing.

Natural casings breathe, allowing smoking and cooking flavours to permeate the casing and infuse the meat, giving the sausage a rich, even flavour throughout. Collagen natural casings have unique natural curves and sheen, with rounded ends where the sausage is linked giving the sausage visual appeal. They also determine the final size and shape of the sausage product. Collagen natural casing serve as processing molds, containers during handling and shipping, and as merchandising units for display.

Natural casings are traditional products that have been used in the production of meat specialties for centuries and have remained virtually unchanged in function, appearance, and composition. Salt and water are all that used for cleaning and preservation. Collagen natural casings are the only casings that can be used in organic sausage production.

Natural casing are delivered exclusively from the gastro-intestinal tracts of swine, cattle, sheep and goats.

Edible natural casings — Sausages — Specification

1 Scope

This Draft Uganda Standard specifies the recommendations, requirements, test and sampling methods for Edible natural casings used in sausage production fit for the food industries and human consumption.

2 Normative Reference

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 779, *Requirements for the transportation of meat and meat products*

US 737, *Hygienic requirements for the production of packaged meat products (processed or manufactured*

US CAC/GL 50, *General guidelines on sampling*

US CAC/RCP 58, *Code of hygiene practice for meat*

US EAS 38, *Labelling of prepackaged foods — Specification*

US 45, *General standards for food additives*

US 1659, *Materials in Contact with Food — Requirements for Packaging materials*

US ISO 6579, *Microbiology of food and animal feeds — Horizontal method for detection, enumeration and serotyping of Salmonella, Enumeration by a miniaturized most probable number technique*

US ISO 6888-1, *Microbiology of food and animal feeds — Horizontal method for enumeration of Coagulase-positive staphylococci. (Staphylococcus aureus and other species), Detection and MPN technique for low numbers*

US ISO 7251, *Microbiology of food and animal feeds — Horizontal method for detection, enumeration of presumptive Escherichia coli — Most probable number technique*

US 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*

US 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*

US ISO 4832, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*

US ISO 4833-1, *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 °C by the pour plate technique*

US ISO 4833-2, *Microbiology of the food chain – Horizontal method for the enumeration of microorganisms – Part 2: Colony count at 30 °C by the surface plating technique*

US EAS 12, *Potable water — Specification*

US EAS 35, *Fortified food grade salt — Specification*

3 Terms and definitions

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

3.1

round

animal casings derived from the small intestines of cattle, , sheep, goats and pigs

3.2

middles

animal casings derived from large intestines of cattle and pigs

3.3

middle Cap or Cap

animal casing prepared from the caecum of blind gut of the pig

3.4

bungs

animal casing prepared from the caecum (beef bung and pig bung)

3.5

bladders

animal casings prepared from the urinary bladders of pigs and cattle

3.6

weasands

animal casing prepared made from the mucosa of oesophagus of cattle

3.7

runners

animal casings prepared from small intestines of cattle

3.8

nodule

small rounded structure

3.9

cicatrice

scar of healed-up wound.

3.10

Domestic

small grease spot in the casing.

3.11.

Kink

twisted loop in the casing

3.12

Rust

black spot caused by putrefaction due to bacterial or fungal action

3.13**Casing**

material that encloses the filling of a sausage

3.14**Hank**

is a unit of measure used in sausage casing

4 Requirements**4.1 General requirements**

Edible natural casings shall;

- a) be obtained from healthy animals slaughtered in licensed premises and subjected to ante-mortem and post-mortem inspection according to the procedure prescribed in US CAC/RCP 58
- b) be clean, safe and suitable for the intended purpose, prepared and handled in a sanitary manner and where no contamination or exposure to infectious material during handling
- c) be prepared under hygienic conditions and shall be wholesome not have been subjected to any bacterial activation or fermentation
- d) quality of water used for processing shall be of potable quality and in accordance with US EAS 12.
- e) be strong enough to resist the pressure produced by filling them with sausage mix
- f) be permeable to water vapour and gases, thus allowing fillings to dry
- g) absorb smoke for additional flavour and preservation
- h) expand or shrink firmly attached to the sausage mix
- i) be closed at the ends by tying or clipping
- j) free from foreign matter and odour
- k) be free from any parasitic infestation and from scars of healed-up wounds

4.2 Types of edible natural casings

Edible natural casings shall be from;

- a) Dried cattle casings known commercially as 'Beef Casings'
- b) Salted cattle casings known commercially as 'Beef Casings'
- c) Salted sheep or goat casings known commercially as 'Sheep or goat Casings'
- d) Salted pig casings known commercially as 'pig Casing'.

4.3 Grading

Edible natural casing shall be graded basing on quality as in Table 1.

Table 1 — Quality grading of Edible natural casing

S/N	Grade	Requirement
Dried Casings	Cattle Prime quality (PQ)	The casings 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, domestics, black nodes, slime, mucus, dung, mould or fungus infestation and free from defects like holes, blisters, lacerations, nodules and cicatrices.
	Grade 1	The requirements for this grade shall be the same as for Grade PQ except that a slight deviation in colour and folds and a few black nodes shall be permitted. Total fat streaks shall not exceed 40 per meter; 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.
	Grade 2	Casings not conforming to Grade PQ or Grade 1 due to defect in rolling and/or having larger black nodes or rough texture or streaks of fat not exceeding 60 in a meter shall be classed in this grade.
	Grade 3	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 meter.
	Bladder	Bladder, otherwise conforming to requirements of Grade PQ.
	Weasands	Weasands, otherwise conforming to requirements of Grade PQ.
	Bungs,	Bungs, otherwise conforming to requirements of Grade PQ.
	Fat ends	Fat ends, otherwise conforming to requirements of Grade PQ.
Salted Casings	Cattle Prime quality	The casings 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, domestics, black nodes, slime, mucus, dung, mould or fungus infestation and free from defects like holes, blisters, lacerations, nodules and cicatrices. On being inflated with air, rolled round the finger and pressed, the casings shall burst with a sharp sound.
	Bladder	The wall shall be of uniform natural colour, lustrous throughout without any spot or mark and free from discolouration. The material shall be free from any tear or laceration. The material shall also be free from salt burns, rust, domestics, black nodes, slime, mucus, dung, mould or fungus infestation and free from defects like holes, blisters, nodules and cicatrices.
	Weasands	Weasands, otherwise conforming to requirements of 'Bladder'
	Bungs,	Bungs, otherwise conforming to requirements of 'Bladder'
	Fat ends	Fat ends, otherwise conforming to requirements of 'Bladder'.
Salted Casings (including Goat Casings)	Sheep Prime Quality (PQ) or Grade 1	The casings shall be of natural colour throughout without any discolouration. The casing wall shall be intact and not torn or lacerated. The casings shall also be free from salt burns, rust, domestics, black nodes, slime, mucus, dung, mould or fungus infestation and free from defects like holes, blisters, lacerations, nodules and cicatrices. The casing shall not burst when filled with air or water to its normal capacity and slightly pressed. The rings or hanks shall have been cured properly with common salt.
	Grade 2	The requirements for this grade shall be the same as for Grade PQ except that a slight deviation shall be allowed in respect of colour and/or strength and pinholes on walls not exceeding 2 in a meter. The material should be fit for use in preparation of sausages.
	Grade 3	The requirements for this grade shall be the same as for Grade II except that the presence of nodules shall be permitted
Salted pig Casings	Prime Quality (PQ)	The casings shall be of natural colour throughout without any discolouration. The casing wall shall be intact and not torn or lacerated. The casings shall also be free from salt burns, rust, domestics, black nodes, slime, mucus,

		dung, mould or fungus infestation and free from defects like holes, blisters, lacerations, nodules and cicatrices. The casing shall not burst when filled with air or water to its normal capacity and slightly pressed. The rings or hanks shall have been cured properly with common salt.
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4.3 Casing length from different animals

Edible natural casings shall be measured in hanks as Table 2;

Table 2—Edible collagen natural casing Length of different animals

Species	Type	Length (m)
Cattle/ pig	Runner	25-40
	Middle	5.5-7.5
	Bung	1-1.5
	Weasand	5.5
	Bladder	20-35cm wide
Sheep	Round	27
Goat	Round	22

Note 1

- 1 hank = salted sheep and goat casings of 92 metres in length
- 1 hank = dried cattle casings of 180 meters in case of runners or 90 meters in case of middles

4.4 Casing defects

Edible natural casings shall be free of the following defects;

- Dull colour: (grayish or greenish instead of white or milky) due to defective cleaning.
- Nodules: due to oesophagostomum (a round worm) in the intestines of sheep, goat and pigs
- Holes and lacerations: caused by negligence or rough handling of guts during processing.
- Salt burns: due to long storage of guts in the salt or packed loosely leaving the air inside. Such patches may also develop due to defective salt, which has calcium and magnesium ions.
- Defective grading like cicatrices, domestics, kink and rust

5 Contaminants

5.1 Veterinary Drug Residues

Edible natural casings shall have a maximum residual limit for veterinary drugs in accordance with Codex standards

5.2 Pesticide residues

Edible natural casings shall have a maximum residual limit for veterinary drugs in accordance with Codex standards.

6 Hygiene

Edible natural casings shall be handled, stored and transported following hygienic practices in accordance with US CAC/RCP 58, the personnel handling natural casings shall also be clean and healthy.

6.1 Microbiology

Edible natural casings shall be free from microorganisms as stated in Table 3 below;

Table 3 — Microbiological requirements for Edible natural casings

S/No.	Microorganism	Limit	Test method
i)	Salmonella spp	Absent	US ISO 6579
ii)	Total plate count, cfu per gram, Max.	10 ⁶	US ISO 4833
iii)	Coliform count, cfu per gram, Max.	Absent	US ISO 4832
vi)	Yeast and mould count, cfu per gram, Max.	10	US ISO 21527-2
v)	E.coli cfu per gram, Max	Absent	US ISO 7251
vi)	<i>Staphylococcus aureus</i>	Absent	US ISO 6888-1

7 Food Additives

Edible natural casings shall be preserved prior to storage as in accordance with US 45.

8 Packaging

Edible casings shall be packaged in food grade material and in accordance with US 1659.

Edible natural casings may be packaged using the following methods in order to preserve the quality, extend shelf life and add the aroma using. Any other method may also be used,

- a) Dry salt packed: Excess moisture is removed from the casings and packed in a semi-dry state. This type of packaging is usually appropriate for long distance travel and/or prolonged storage at ambient temperatures.
- b) Slush or pre-flushed packed: Casings are packaged in a water/salt mixture. The casings are very soft and flexible and do not require flushing prior to stuffing sausage.
- c) Pre-tube packed: Each strand of natural casing is shirred on a tube to allow one-step loading of the casings directly onto the stuffing horn.

9 Labelling

In addition to the requirements of US EAS 38, the following labelling requirements shall apply and shall be legibly and indelibly marked.

- a) Common name of the product to be declared on the label as "Edible natural casing"
- b) Type of Edible collagen natural casing eg 'cattle, goat , sheep and pig
- c) The grade and the length
- d) Net contents by weight ('System International') units;
- e) Name and physical address of the manufacturer/distributor;
- f) Country of origin;
- g) Lot /batch identification;
- h) Shelf life: best before/use by date;
- i) Statement 'Food for Human Consumption' shall appear on the package;
- j) Storage conditions as "Store in a cool dry place away from contaminants":
- k) Instructions on disposal of used package;
- l) Each container may also be marked with a Certification Mark
- m) Any other requirement as given OIML R87, Quantity of product in pre-packages.
- n) Religious note eg Halal or not Halal
- o) Names of the ingredients used
- p) Packaging date.
- q) Instruction for use
- r) Product storage life of properly stored natural casings can last under refrigeration for at least one to two years.

10 Nutrition and health claim

Edible natural casing may have health claims associated with nutritional composition and health. Such claims when declared shall be consistent with US EAS 805.

11 Storage and transportation

11.1 Edible natural casing shall be stored and transported as in accordance with US 737 and US 779.

11.2 Salt used in salted natural casings shall be in accordance with US EAS 35

Note 2

Natural casings shall be Stored in air tight containers and refrigerate

Natural casings shall not be frozen since freezing a natural casing will weaken it and it will be no good after it has thawed.

12 Sampling

Sampling shall be carried out in accordance with US CAC/GL 50.

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Annex A (informative)

Preparation and recovery of edible natural casings

A.1 Preparation

- Casings should be manufactured from gut of healthy animals, which have been properly slaughtered, inspected and passed.
- Intestines for processing should not have ulcers and heavy parasitic infestations with nodules.
- Sanitary handling conditions should be maintained from slaughter to final packing.
- The product should be clean with good colour and without objectionable odour. It should have proper length and be sufficiently cured.
- The preparation of casings derived from different species of animals is basically similar.
- The main difference is pig; sheep and goat casings being very fragile require more careful treatment than that of beef's casings.
- Because of this removal of fat from the casings of the small animals must be performed by hand, helped with a scrapping sticks while patting of beef casings require harsh treatment.
- beef casing has to be turned inside out, whereas sheep and goat casings are sold unturned.
- Pig casings, if possible, should be turned after defatting

A.2 Recovery

- The removal of entrails should be done in such a way that the whole intestinal tract comes out without being damaged by cuts or unnecessary contamination.
- The separation and division in to different parts should take place on a table with a supply of running water.
- The casing should be detached and the ligature made so that the contents do not run out.
- As soon as the different parts are separated they undergo further treatment.
- When the quantity is large, it is essential to have different casings treated separately.
- For example, the bladder and weasand that are to be dried should not be mixed with those, which are to be salted.
- Sheep and goat casings are generally stored wet and salted whereas cattle casings are generally dried in processing and sprinkled with insecticide to safeguard during storage period.

Bibliography

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- [3] Joseph Sebranek (PH.D), Natural Vs artificial casings, (2010), evaluating which is best for your products

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