

**Fermented sausages (*salami*)
-specification**

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KENYA STANDARD

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The following organizations were represented on the Technical Committee.

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National Public Health Laboratory
Government Chemist's Department
Farmer's Choice (K) Ltd.
University of Nairobi — Department of Food Science, Nutrition and Technology
Consumer Information Network
Kenchic (K) Ltd.
Kenya Meat Commission
Directorate of Livestock Production
Directorate of Veterinary Services
Kenya Nut Company- Morendat farm
Meat Training institute
Choice Meats limited
Kenya Bureau of Standards — Secretariat

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KENYA STANDARD

Fermented sausages (*Salami*) — Specification

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Foreword

This Kenya Standard was prepared by the Meat and Poultry Products Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

Fermented sausages commonly referred to as salamis are a type of cured sausage meat consisting of fermented and air-dried meat, typically beef or pork, other meats can also be used for processing the product. As an emerging product, fermented sausages are currently being produced and marketed in Kenya. However, there is no national standard to regulate their quality and safety and hence the preparation of this first edition of the standard. The standard specifies Methods of sampling and analysis that enhance maintenance of quality and safety of fermented sausages

During the preparation of this standard, reference was made to the following documents:

The Food, Drugs and Chemical Substances Act, Cap 254 of the Laws of Kenya.

International Commission on Microbiological Specifications for Foods - Micro-organisms in Foods, Book 8.

The assistance derived from the above sources is highly acknowledged.

KENYA STANDARD

Fermented sausages (*salami*) — Specification

1. Scope

This standard prescribes the quality and safety requirements, sampling and method of test for fermented sausages.

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.

- I. *KS CAC/MRL 2- Maximum Residue Limits for Veterinary Drugs in Food*
- II. *KS ISO 16649-2, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide.*
- III. *KS ISO 6579 Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp.*
- IV. *KS ISO 11290 - 1 Microbiology of the food chain - Horizontal method for the detection and enumeration of Listeria monocytogenes and other Listeria spp. -- Part 1: Detection method.*
- V. *KS 2761 code of hygienic practice for meat*
- VI. *KS 1051 Guide on maximum limits of pesticide residues in foods*
- VII. *EAS 39 Standard Code of Hygiene Practice for Food and Drink Manufacturing Industry*
- VIII. *EAS 38, Labelling of pre-packaged food*
- IX. *Codex standards GSFA 192.*
- X. *KS 2763 meat speciation – method of test*
- XI. *ISO 4833 Microbiology of the food chain -- Horizontal method for the enumeration of microorganisms*
- XII. *British standards EN14332, 14627, 14082, 14083, 14084*
- XIII. *Association Of Official Analytical Chemists AOAC 999.10, 999.11, 973.34, 986.15, 971.21*
- XIV. *Codex Alimentarius Commission CAC/MRL 2 Maximum Residue Limits for Veterinary Drugs in Food*
- XV. *KS CAC/RCP 68-2009 Code Of Practice For The Reduction Of Contamination Of Food With Polycyclic Aromatic Hydrocarbons (PAH) From Smoking And Direct Drying Processes*

3. Definitions

For the purpose of this standard, the following definitions shall apply:

- 3.1. Meat** - is all parts of an animal that are intended for, or have been judged as safe and suitable for human consumption
- 3.2. Fermentation** - is the anaerobic breakdown of sugar into lactic acid (by microorganisms in the starter culture) within the batter, which lowers the pH of the batter
- 3.3. Starter culture** - a commercial preparation of microorganisms for fermenting the batter
Shelf stable means food that has been processed so that it can be safely stored at room temperature for a period of time
- 3.4. Water activity (aw)** - means a measure of the water in the food which is available for bacterial growth
- 3.5. Batter mix** - means all the ingredients in a recipe that have been combined prior to filling a casing
- 3.6. Ready-to-eat** - Products that are intended to be consumed without any further biocidal steps.

- 3.7. Salami-** Meat such as livestock and poultry that are minced or crushed, added with salt or starter, and then filled into casings, have stable microbial characteristics and typical fermented aromas after fermentation, drying, and ripening.
- 3.8. Food animal-**Animals declared as such under the laws of Kenya
- 3.9. Smoking-**the process of flavoring, browning, cooking, or preserving food by exposing it to smoke from burning or smoldering material, most often wood.

4. General requirements

- 4.1.** Fermented sausage meat shall be derived from food animals slaughtered in a hygienically managed slaughter-house and subjected to ante-mortem and post-mortem examination according to the procedure prescribed in KS 2761.
- 4.2.** The meat from which the product is prepared shall be of a quality suitable for human consumption free from objectionable odours, foreign matter and discoloration.
- 4.3.** The product shall be prepared, handled and delivered under hygienic conditions.
- 4.4.** The product shall be prepared in a facility which is complying with KS EAS 39.

5. Raw materials requirements

- 5.1.** Meat shall be derived from animals slaughtered in a hygienically managed slaughter house complying with KS 2761.
- 5.2.** Curing agents complying with The Food, Drugs and Chemical Substances Act, Cap. 254 of the Laws of Kenya.
- 5.3.** Food additives used in fermented sausages shall be complying with the Food, Drugs and Chemical Substances Act, Cap. 254 of the Laws of Kenya and Codex GSFA.
- 5.4.** Fats complying with KS 326,
- 5.5.** Salt complying with KS EAS 35
- 5.6.** Food grade sausage casing Starter culture *complying with relevant standards*

5.7. Optional Ingredients

All optional ingredients used shall be of food grade quality and conform to applicable Kenyan Standards.

5.7.1. Sucrose, invert sugar, dextrose (glucose), lactose, maltose, glucose syrup (including corn syrup).

5.7.2. Spices, seasonings and condiments complying with respective Kenya Standards.

6. Compositional requirements

6.1. Essential compositional and quality requirements

Fermented sausages and sausage meat shall comply with the compositional and quality requirements given in Table 1

Table 1 — compositional requirements for fermented sausages

SL No.	Characteristic	Raw/sausage meat limits for the final products (% m/m)	Test method
i)	Total meat content, (min.)	52	KS 166
ii)	Moisture content, (max.)	65	"
iii)	Fat content, (max.)	30	"
iv)	Total ash, (max.) on dry weight	3	"

7. Hygienic requirements

- 7.1 The processing of raw-fermented sausages is dominated by biological and biochemical processes and raw meat materials of excellent hygienic quality are a precondition for the correct functioning of such processes
- 7.2 Raw-fermented sausages shall be prepared, handled and stored in accordance with the appropriate sections of KS EAS 39 and KS 2761
- 7.3 All workers shall use appropriate personal protective equipment that does not contaminate the product.
- 7.4 All workers shall undergo a food handlers test before their deployment and every so often as per the Public Health Act Cap 242 and Food, Drugs and Chemical substances Act Cap 254.
- 7.5 Necessary precautions shall be taken to prevent incidental contamination of the product from soiled and/or dirty equipment or from persons suffering from injuries.
- 7.6 All equipment coming into contact with raw material or product in the course of manufacture shall be kept clean.
- 7.7 Adequate supply of running potable water that complies with EAS 12 and/or steam/boiling water, brushes, and other equipment necessary for proper cleaning of machinery/equipment shall be available.
- 7.8 The equipment shall be cleaned, sanitized and/or disinfected using an appropriate food grade agent or with hot water at a temperature above 82 °C.

7.9. Microbiological limits

Fermented sausages shall not contain any pathogenic organisms and shall comply with microbiological limits given in Table 2.

Table 2 — Microbiological limits for Fermented Sausages

SL No.	Type of organisms	Max	Test method
I.	<i>E. coli</i> 0157:H7	Absent in 25g	KS ISO 16649-2
II.	<i>Salmonella</i> spp	Absent in 25g.	KS ISO 6579
III.	<i>Listeria monocytogenes</i>	Absent in 25g	KS ISO 11290-1
IV.	Coagulase positive <i>Staphylococcus aureus</i>	≤20 cfu/g	KS ISO 6888-1
V.	<i>Campylobacter</i> - for poultry products	Absent in 25 g	ISO 10272-2

8. Meat Identification

The identification/isolation of meat used in fermented sausages shall be done according to the Polymerase Chain Reaction test as per KS 2763 or any other validated test method.

9. Veterinary drugs residues

Fermented sausages shall comply with maximum Veterinary drugs residue limits prescribed in CAC/MRL2

10. Heavy metal contaminants

Fermented sausages shall not contain heavy metal contaminants in excess of the limits given in Table 3.

Table 3 — Limits for heavy metal contaminants in fermented sausages

SL No.	Heavy Metals	Maximum limits Ppm	Test methods
I.	Arsenic (Ar)	0.1	AOAC 986.15 EN14332, 14627
II.	Lead (Pb)	0.5	AOAC 999.10, 999.11, 986.15 EN14082, 14083,14084
III.	Cadmium	0.05	AOAC 986.15, 999.11,973.34 EN 14082,18083,14084
IV.	Mercury	0.03	AOAC 971.21

* Note: where a risk assessment indicated the possibility of occurrence of other heavy metal contaminants not listed, then the product shall be tested.

11. Packaging and labelling

11.1. Packaging

Packaging of Fermented sausages shall be done in food grade packaging materials that protect the product from any physical, microbiological, chemical or any other type of contamination during storage and distribution. The packages shall be able to withstand the rigors of handling and transportation and shall not be exposed to direct sun or rain.

11.2. Labelling

Labelling of packages fermented sausages shall be done in accordance with the requirements stipulated in *EAS 38, Labelling of pre-packaged food* and shall include the following:

- a. Description /Name of the product (type of meat or meats used)as appropriate
- b. List of ingredients in descending order
- c. Allergens declaration
- d. Name, location and address of manufacturer
- e. Net weight, in g or kg
- f. Declaration as either "raw"," cooked" and/or "smoked"
- g. Declaration as "raw" product
- h. Date of manufacture
- i. Expiry date
- j. Batch number
- k. Instructions for use
- l. Storage conditions and temperature of storage
- m. Country of origin or "Made in Kenya" for locally manufactured products.