DRAFT TANZANIA STANDARD

Sausages — Specification Part 2: Chicken sausages

TANZANIA BUREAU OF STANDARDS

Sausages — Specification Part 2: Chicken Sausages

0 FOREWORD

The demand for chicken sausage is increasing due to its availability and nutritional benefits compared with other meat sausages. Chicken sausage is a product obtained by stuffing course or finely comminuted chicken carcasses with or without edible offals and associated ingredients into casing. Chicken sausage may be raw, cooked and /or smoked.

This Tanzania standard has been prepared to ensure safety and quality of chicken sausages traded in the country.

In the preparation of this Tanzania standard, considerable assistance was drawn from IS 13400:1992, *Meat and Meat Products — Chicken Sausages — Specification* published by the Indian Bureau of Standards.

In reporting, the results of a test or analysis made in accordance with this standard, if the final value observed or calculated, is to be rounded off, it shall be done in accordance with TZS 4 (see clause 2).

1.0 SCOPE

This Tanzania standard specifies requirements, methods of sampling and test for chicken sausages intended for human consumption.

2.0 REFERENCES

For the purpose of this Tanzania standard, the following references shall apply. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced standards (including any amendments) applies:

TZS 4 – Rounding off numerical values.
TZS 76 – General method for determination of Arsenic silver diethyldithiocarmate photometric method.
TZS 2180 – Ante-mortem and post-mortem inspections of poultry – Code of practice.
TZS 118/ISO 4833, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of microorganisms – Colony-count technique at 30^{o}C
TZS 119 – Microbiology – General guidance for the enumeration *of coliforms* – Most Probable Number technique (MPN).
TZS 121, Microbiological examination for *Clostridium botulinum* and *Clostridium botulinum* toxins – Test method.
TZS 122 – Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Salmonella spp.*
TZS 125 – Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other

species) – Part 1: Technique using Baird-parker agar medium – Amendment 1: Inclusion of precision data.
TZS 129 – Meat and meat products – Microbiological examination – Sampling
TZS 131 – Microbiology - General guidance for enumeration of yeast and moulds – Colony count technique at 25 ºC
TZS 132 - Fortified food grade salt — Specification
TZS 268 – General atomic absorption spectrophotometric method for determination of Lead in food and food stuffs
TZS 458 - Code of hygiene for meat processing plant
TZS 538 – Packaging and labelling of foods
TZS 852-2 – Microbiology of food and animal feeding stuffs – Horizontal method for detection and enumeration of *Listeria monocytogenes* - Enumeration method
TZS 731 – Microbiology of food and feeding stuffs – Horizontal method for detection and enumeration of presumptive *Escherichia coli* – Most Probable Number Technique
TZS 1760 /ISO 937 Meat and meat products – Determination of nitrogen content (Reference method)
Codex Stan 193 – Codex General Standard for Contaminants and Toxins in Food and Feed
TZS 949-1 /ISO 21528-1, Microbiology of food and animal feeding stuffs – Horizontal methods for the detection and enumeration of Enterobacteriaceae – Part 1 – Detection and enumeration by MPN technique with pre-enrichment
TZS 949-2/ISO 21528-2, Microbiology of food and animal feeding stuffs -- Horizontal methods for the detection and enumeration of Enterobacteriaceae – Part 2 – Colony count method
TZS 1759 – Meat and meat products – Determination of nitrite content (Reference method)
TZS 1761/ISO 1443 Meat and meat products – Determination of total fat content
ISO 1442 Meat and meat products – Determination of moisture content (Reference method)
ISO 936 Meat and meat products – Determination of total ash
CAC/RCP 58-2005, Code of hygienic practice for meat
ISO 4833, Microbiology of foods and animal feeding stuffs – Horizontal method for the enumeration of microorganisms – Part 2: Colony count technique at 30 °C
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
IS0 1841-1 – Meat and meat products -- Determination of chloride content -- Part 1: Volhard method
Codex Stan 192, General standard for food additives

3.0 TERMS AND DEFINITIONS
For the purpose of this standard, the following terms and definitions shall apply:

3.1 broiler
it is a young meat type chicken, usually 6 to 8 weeks of age, either sex, with tender-soft, pliable, smooth textured skin and flexible breast bone

3.2 culled chicken
chicken of age not below 8 weeks, healthy and well nourished, usually include spent hens, cockerels and cocks

3.3 deboned chicken meat
hand or mechanically deboned meat free of bones, excessive fat and thick tendons

3.4 chicken edible offal
includes skin, gizzard, heart and ova that are clean and wholesome

3.5 fresh meat
meat that has not been subjected to any processing other than chilling, freezing, vacuum-packaging or wrapping in a controlled atmosphere

3.6 by-products
parts of a slaughtered bird which are not intended for human consumption

3.7 casing
natural or artificial materials used to protect and or hold sausages

3.8 sausage
product obtained by stuffing meat and associated ingredients like nuts, pulses and soya protein in casings and which may be fresh, fermented, cooked and/or smoked

3.9 fresh sausages /raw sausages
sausages made from meat has not been previously cured and require chilling or freezing and thorough cooking before eating

3.10 cooked sausages
sausages made from fresh meat and then fully cooked, to be eaten either immediately after cooking or refrigerated

4.0 REQUIREMENTS

4.1 General requirements

4.1.1 Requirements for chicken carcasses and edible offals

4.1.1.1 Carcasses drawn from healthy live chickens in accordance with TZS 2180.
*4.1.1.*2 Chicken carcasses shall be suitably scalded and all pin feathers and body hairs removed by picking or singeing.
4.1.1.3 Chicken carcasses shall be well dressed and head, legs, vents and oil gland removed and eviscerated.

4.1.1.4 The carcasses and edible offals shall be properly cleaned, washed, drained and suitably chilled at 4 °C for a maximum period of 5 days or frozen at -18 °C for a maximum period of 3 months, as required.
4.1.1.5 Meat, skin and detachable fat shall be collected separately. Meat shall be free from visible bones and thick tendons shall be separated.
4.1.1.6 Meat, edible offal's and fat shall be chilled to less than 4 °C or frozen (-18 °C). When frozen, they should be tempered to a temperature of 2 to 4 °C before sausage
4.1.1.7 The dressed carcass or cuts shall be deboned in hot, chilled or frozen and tempered condition.
4.1.1.8 Deboning process shall be done in a cool room maintained at less than 20 °C. The deboned meat shall be immediately transferred to chill room temperature at 4 °C unless used immediately.
4.1.1.9 Deboned meat shall be moderately firm (not oily or soft), bright in colour and free from foreign odour or taste, discoloration and deterioration. Frozen meat shall be used after proper tempering and it should be sound and fit for human consumption
4.1.1.10 Edible offals shall be free from extraneous material and taints and shall be properly stored before being used.

4.1.2 Ingredients requirements

4.1.3 Chicken carcases and/or edible offals

4.1.3.1 **Chicken fat**

Abdominal fat, subcutaneous fat and other separable fat shall be used. The fat should be wholesome and free from extraneous material.

4.1.3.2 **Fillers/binders**

Wholesome cereal husk, whole egg liquid, cracker meal, wheat flour, potato flour, soya flour, textured soya and dried milk solids shall be used.

4.1.2.3 **Spices and condiments**

Spices and condiments used shall be clean, wholesome and fit for human consumption.

4.1.2.4 Sweetening agents

Sweetening agents, if used, shall be only refined cane sugar or dextrose.

4.1.2.5 Salt

Salt used in the preparation of chicken sausages shall conform to TZS 132.

4.1.2.8 Casings

Casings used shall conform to requirements for food grade materials.

4.1.7 Food additives

Food additives may be used in sausages and shall be in accordance with the Codex Standard 192.

4.1.8 Chicken sausages;

4.1.8.1 Shall not show any defects on casing or colour change and must have no foreign or any other objectionable odour.

4.1.8.2 Shall be of a good uniform texture characteristic of the product.

4.1.8.3 Shall be free from dirt, insect and rodent contamination. Poisonous or deleterious substances shall not be present.

4.1.8.4 No artificial colouring matter shall be used.

4.2 Specific requirements

Chicken sausages shall comply with the requirements specified in Table 1

Table 1: Composition requirements for chicken sausages

S/N	Characteristic	Requirements	Test methods (See clause 2)
1.	Total meat, %, min	62	Annex A
2.	Fat, %, max.	20	TZS 1761
3.	Moisture, %, max.	62	ISO 1442
4.	Total ash, %, max	3.2	ISO 936
5.	Sodium nitrite, Max	0.02	TZS 1759
6.	Phosphate, Max	0.5	ISO 5553
7.	Salt, % Max	2.5	IS0 1841-1

5.0 CONTAMINANTS

5.1 Chicken sausages shall comply with the requirements on maximum limits for heavy metals as prescribed in Table 2.

Table 3: Heavy metals requirements

S/N	Characteristic	Requirements	Test Method
1.	Mercury (Hg), mg/kg, max.	0.03	ICP/AAS
2.	Lead (Pb), mg/kg, max.	0.1	TZS 268
3.	Arsenic (As), mg/kg, max.	0.1	TZS 76

4.	Cadmium (Cd), mg/kg, max.	0.05	ICP/AAS

5.2 Veterinary drug residues

Chicken sausages shall comply with the requirements on maximum allowable veterinary drug residue limits as prescribed in the CAC/MRL 2.

6.0 HYGIENE

6.1 Chicken sausages shall be prepared under strict hygienic conditions according to TZS 458 (See clause 2).

6.2 On testing, the sausages shall not contain microbiological count exceeding the requirements prescribed in Table 3.

Table 3: Microbiological requirements for chicken sausage

S/N	Characteristics	Requirements	Method of test (see clause 2)
1.	Total plate count, cfu/g, max.	10^4	TZS 118
2.	Enterobacteriaceae, max.	10^2	TZS 949 (Part 1 or 2)
3.	*Salmonella spp* /25 g	Absent	TZS 122
4.	*Escherichia coli,* MPN/g	Absent	TZS 731
5.	*Listeria monocytogenes*	Absent	TZS 852 (Part 2)
6.	*Clostridium botulinum*	Absent	TZS 121
7.	*Staphylococcus aureus,* cfu/g	Absent	TZS 125-1
8.	Yeast/moulds, cfu/ml, max.	10^2	TZS 131

7.0 SAMPLING AND TESTS

7.1 Sampling

Sampling of chicken sausages shall be done according to TZS 129 (See clause 2).

7.2 Tests

Testing of this product shall be done according to test methods prescribed in Table 1, 2, and 3.

8.0 PACKAGING, MARKING AND LABELLING

8.1 Packaging

8.1.1 In addition to the packaging and labelling requirements prescribed in TZS 538 (see clause 2)**,** sausages shall not be exposed to direct sun or rain.

8.2 Marking and labelling

8.2.1 Chicken sausages shall be marked and labelled in accordance with TZS 538 (see clause 2). In addition, each container shall be legibly and indelibly marked with the following information:

a) Name of the product as appropriate;
b) Country of origin;
c) Declaration as either “raw”,” cooked”;
d) Declaration of method of drying (if dried);
e) Declaration of preservatives used;
f) Name and physical address of the manufacturer;
g) Net Weight content;
h) List of ingredients;
i) Batch or code number;
j) Date of manufacture shall be clearly shown on the container;
k) Expiry date shall be clearly shown on the container;
l) Instructions for use and storage;

The container may also be marked with TBS Certification Mark.

NOTE – The TBS Standards Mark of Quality may be used by the manufacturers only under license from TBS. Particulars of conditions under which the licenses are granted may be obtained from TBS.

Annex A
(Informative Appendix)

DETERMINATION OF MEAT CONTENT

A.1 Introduction – The method is based on an estimation of lean meat from total nitrogen content, corrections being applied for the contribution from any cereal filler or other nitrogenous material present.

A.2 Definition – For the purpose of this method of test, the following definition shall apply:

A.3 Meat content – is the total amount of lean meat tissue and meat fat.

A.4 Procedure – The typical general calculation using the Stubbs and more procedure depends on the determination of water, protein, fat and ash content of the sample. Carbohydrates content may be determined directly or by difference.

A.5 Carbohydrates – C = 100 – (% water + 96 fat +% protein +% ash).

The nature of the filler can be detected by identifying the starch by microscopically examination.

Appropriate valves of nitrogen content of cereal fillers have been recommended as follows: 2.0 per cent for wheat rusk (SAC* 1965), and 1.8 per cent for pearl barley (SAC* 1968), potato starch and corn flour have been negligible nitrogen content.

Assuming the filler is wheat rusk: percent filler nitrogen =N_c = 0.02C

If N_T = % total nitrogen in sample:

% defatted lean meat = $\frac{DM = NI - 0.02C * 100}{NF}$

Where,

N_F is the appropriate nitrogen factor for the meat present. See Table 1 below.

% total meat = Defatted lean meat + fat.

A.6 Mean Nitrogen Factor (N_F used to convert "Meat Nitrogen" into Fat Free Raw Meat

TABLE 1. MEAN NITROGEN FACTOR

S/No	VARIETY OF MEAT	N_F
1	Kidney	2.7
2	Tongue, ox or pig	3.0
3	Blood	3.2
4	Veal	3.35
5	Ox, Liver, Pork	3.45

6	Turkey, dark meat	3.5
7	Beef	3.55
8	Chicken, dark meat	3.6
9	Pig liver, turkey, whole	3.65
10	Chicken whole	3.7
11	Chicken breast, turkey breast	3.9
12	Lamb	3.9

Analytical chemistry has recommended factors (N_F) for conversion of the nitrogen content of various species into the equivalent fat-free raw meat content. The value of N_F are the mean nitrogen content of the lean tissue expressed on the fat-free basis.