Offal - Specification

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TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Ministry of Health- food safety unit
Kenya Industrial Research and Development Institute
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
Alpha fine foods limited
Kenya Nut Company- Morendat farm
Quality Meat Packers
Choice Meats limited
Kenya Bureau of Standards — Secretariat

REVISION OF KENYA STANDARDS

In order to keep abreast of progress in industry, Kenya standards shall be regularly reviewed. Suggestions for improvement to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.
Offal - Specification
Foreword

This Kenya Standard was prepared by the Meat and Meat 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.

The preparation of the first edition of the standard was found necessary so as to present a standard that accommodates both the red and green offal offered for the market and align the microbiological requirements, heavy metal limits and Minimum Residue Levels for pesticides and veterinary drugs residue with the current advances in science.

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

- The Food, Drugs and Chemical Substances Act, Cap 254, Cap 256 of the Laws of Kenya.
- Meat Control Act Cap 356 of the laws of Kenya
- UNECE standard for edible meat co-products 2008 edition

The assistance derived from the above sources is highly acknowledged.
1. **SCOPE**

This Kenya Standard specifies the hygienic, quality and safety requirements; and methods of analysis and sampling of offal meant for human consumption.

**Application**

This standard shall apply for red offal and green offal of food animals (cattle, swine, sheep, goats, and poultry) commonly referred to as ‘matumbo’.

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

II. KS ISO 22000 Food safety management systems - Requirements for any organization in the food chain.
III. KS EAS 151 - Hazard analysis critical control points (HACCP).
IV. KS 2299 Code of practice for Ante-mortem and post-mortem inspection of meat animals.
V. KS CAC/MRL 2: Maximum Residue Limits for Veterinary Drugs in Food
VI. KS EAS 38 - Labelling of pre-packaged foods
VII. KS ISO 4832 — Microbiology of food and animal feeding stuffs -- Horizontal method for the enumeration of coliforms — Colony-count technique.
VIII. KS ISO 16649-2 Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-gluconidase-positive *Escherichia coli* — Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-gluconide.
IX. KS ISO 6888-1 Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulate-positive staphylococci (*Staphylococcus aureus* and other species) — Part 1: Technique using Baird-Parker agar medium.
X. KS ISO 6579 Microbiology of food and animal feeding stuffs — Horizontal method for the detection of *Salmonella* spp.
XI. 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
XIII. KS EAS 12 - Specification for potable water
XIV. KS ISO 17604 Microbiology of food and animal feeding stuffs - carcass sampling
XV. KS ISO/TS 17728 Microbiology of food and animal feeding stuffs- sampling techniques for microbiological analysis of foods and feeds.
XVI. KS ISO 16654 Microbiology of food and animal feeding stuffs- Horizontal method for the detection of *Escherichia coli* 0157:H7

3. **DEFINITIONS**

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

3.1. **animal** - means any mammal or bird declared by the Minister, by notice in the Gazette, to be an animal to which this Act applies (meat act)

3.2. **meat** - means any portion of an animal which is intended for human consumption, whether fresh, chilled or frozen or otherwise processed by any means whatsoever or included in any article of food for human consumption (meat act)
3.3. **slaughterhouse** - means any place kept for the purpose of the slaughter of animals for human consumption (meat act)

3.4. **carcass** - means the body of any slaughtered animal after bleeding and dressing (meat act)

3.5. **Eating quality** - refers to the organoleptic factors influencing consumer acceptance and enjoyment of the product. The main eating quality attributes of meat are tenderness, succulence, flavor (taste and aroma).

3.6. **inspecting officer** - means any Veterinary Officer, Health Inspector or any other person duly authorised in writing by the Director of Veterinary Services (meat act)

3.7. **Edible offal** - are those parts of the carcass that has been passed as fit for human consumption. In the case of food animals other than poultry, these include red offal, green offal and white offal. In the case of poultry, these include giblets (the heart, gizzard and the liver without the gall bladder)

3.8. **Red offal** – include heart, liver, kidney, spleen, tongue, lungs, pancreas.

3.9. **Green offal** – include the rumen, reticulum, omasum, abomasum, small intestines, large intestines, colon, and gizzards.

3.10. **White offal** - include the brain, spine, bone marrow, testicles and teats.

3.11. **Tripe** – refers to the muscle walls(with the interior mucosal lining removed) of the first three chambers of a ruminant stomach the rumen, reticulum and omasum.

3.12. **condemned** - carcasses, parts or organs so marked unfit for human consumption meant to be destroyed or rendered unfit for food purposes

4. **GENERAL REQUIREMENTS**

4.1 All animals shall be slaughtered in a hygienically managed slaughter-house. The slaughter shall be supervised by a competent authority. The offal thereof shall be subjected post mortem veterinary inspection as prescribed in the Meat Control Act CAP 356, Laws of Kenya and they shall be certified as being sound and free from contagious and infectious diseases and fit for human consumption.

4.2 The offals shall be obtained from carcasses that have been slaughtered in a licenced premise.

4.3 The offals shall be obtained from food producing animals which have been slaughtered according Meat control Act cap 356.

4.4 All offals shall be prepared under hygienic conditions as stipulated in KS EAS 39 and KS CAC/RCP 58-2005.

4.5 The offals shall be free from foreign bodies, dirt, signs of spoilage and unacceptable odours.

4.6 The post-mortem examination shall be conducted under conditions simulating natural light.

4.7 When inspected and analysed using appropriate methods, the offals shall be free from infectious parasites

4.7.1 All viscera shall be inspected as they are removed from the carcass or in such circumstances as will ensure that they are viscera of a particular carcass.

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4.7.2 Every organ and the associated lymph-nodes shall be examined. When any abnormal condition is observed, the organ or gland shall be incised and the incision made in such a manner as to avoid soiling or contaminating or unnecessarily depreciating the value of any part of the carcass or other organs that may be passed as fit for human consumption.

4.8 Requirements for routine inspection of offal carcasses of cattle and swine, goats, sheep

<table>
<thead>
<tr>
<th>Organ</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stomach, intestines and spleen</td>
<td>The outer, and when necessary the inner, surfaces of the stomach and intestines. and the surface and substance of the spleen shall be inspected, together with the lymph-nodes of the stomach and bowel, gastro-splenic and mesenteric) and web (omentum). The spleen shall be put where necessary, for the inspection of the substance (pulp). They shall be free from haemorrhage, cysts and swellings, free from worms.</td>
</tr>
<tr>
<td>Liver</td>
<td>The surfaces and substance of the liver shall be inspected. The associated lymph-nodes (hepatic) shall also be inspected and the bile ducts incised where necessary. They shall be free from haemorrhage, cysts and swellings, free from worms.</td>
</tr>
<tr>
<td>Kidneys</td>
<td>The lymph-nodes of the kidneys (renal) and the adrenal glands shall be inspected before the removal of the kidneys. Thereafter the kidneys shall be exposed, and the surface inspected and, If necessary, the kidneys shall be split by incision and the substance inspected. They shall be free from haemorrhage, cysts and swellings, free from kidney stones, free from haemorrhage, free from cysts and any discoloration’s.</td>
</tr>
<tr>
<td>Lungs</td>
<td>The lungs shall be inspected and, if obviously diseased, they shall be incised at the base. The associated lymph-nodes (bronchial and mediastinal) shall also be inspected and, unless. Obviously diseased, shall be incised. They shall be free from haemorrhage, cysts and swellings, free from worms.</td>
</tr>
<tr>
<td>Heart</td>
<td>The heart sac (pericardium) shall be opened, and the heart inspected and, if necessary, incised. It shall be free of abnormal swelling, haemorrhage, free of worms and cysts.</td>
</tr>
<tr>
<td>Poultry offal (liver, heart and gizzard)</td>
<td>Heart shall be free of abnormal swelling, haemorrhage, free of worms and cysts. Liver shall be free from gal, discoloration, contaminants and ulcerations, and worms. Gizzard shall be clean, shall be free of abnormal swelling, haemorrhage, free of worms and cysts.</td>
</tr>
<tr>
<td>Testicles and Penis</td>
<td>The outer surface and the substance of the testicles and penis and the superficial inguinal lymph-nodes shall be inspected routinely if meant for the consumption. They shall be free of abnormal swelling, haemorrhage, free of worms and cysts.</td>
</tr>
</tbody>
</table>

Detailed instructions for routine inspection of poultry offal

5 QUALITY CHARACTERISTICS OF GREEN/RED OFFAL

5.1 General Requirements

Preparation

1. Edible offal is relatively perishable and shall be chilled at 3°C before leaving the premises.

2. Edible offal may be presented chilled, frozen or deep-frozen. Ambient temperatures throughout the supply chain should be such as to ensure uniform internal product temperatures as follows.
6 HYGIENE REQUIREMENTS

6.1 HYGIENE REQUIREMENTS
6.1.1. Offal preparation shall be done in an area separate from the meat carcass and cuts preparation area
6.1.2. Offal shall be cleaned with potable water
6.1.3. Green offal may be incised to enable proper/sufficient cleaning
6.1.4. The offal should be free from fur, blood and visible contamination and trimmed where necessary
6.1.5. Offal shall be handled, stored and transported in a manner which will protect them from contamination and deterioration.

6.2 All offal shall be prepared, handled and stored in accordance with the appropriate sections of the;
   a) Food, Drugs and Chemical Substances Act Cap 254,
   b) Public Health Act CAP 242,
   c) Meat Control Act, Cap. 356 of the Laws of Kenya,
   d) KS EAS 39 - Hygiene in the food and drink manufacturing industry - Code of practice,
   e) KS ISO 22000: 2005 Food safety management systems - Requirements for any organization in the food chain,
   f) KS CAC/RCP 58 Codex code of hygienic practice for meat.

6.3 All food handlers shall use appropriate personal protective equipment that does not contaminate the product.

6.4 All food handlers shall undergo a food handlers test before their deployment, and as required by the Food, Drugs and Chemical Substances Act Cap 254.

7 MICROBIOLOGICAL REQUIREMENTS

7.1 It is recommended that all necessary measures required for maintaining a hygienic environment throughout the food chain (production, handling, and marketing) are established to ensure provision of safe food for human consumption.

7.2 Offal shall comply with the microbiological requirements given in Table 1.

Table 1 — Microbiological limits for offal

<table>
<thead>
<tr>
<th>SL No.</th>
<th>Micro-organism</th>
<th>Red offal (Heart, liver, kidney, spleen, lungs, trachea, testicles, tongue)</th>
<th>Green/white offal (Stomach, oesophagus, gizzard)</th>
<th>Small intestine</th>
<th>Large intestine</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.</td>
<td>Aerobic colony count – cfu/g</td>
<td>$10^6$</td>
<td>$10^0$</td>
<td>$10^0$</td>
<td>$10^0$</td>
<td>KS ISO 4833</td>
</tr>
<tr>
<td>ii.</td>
<td>E. coli per g</td>
<td>$10^2$</td>
<td>$10^4$</td>
<td>$10^4$</td>
<td>$10^4$</td>
<td>KS ISO 16649-2</td>
</tr>
<tr>
<td>iii.</td>
<td>Coagulase positive Staphylococcus aureus. per g</td>
<td>$10^3$</td>
<td>$10^0$</td>
<td>$10^0$</td>
<td>$10^0$</td>
<td>KS ISO 6888-1</td>
</tr>
<tr>
<td>iv.</td>
<td>Clostridium perfringenes</td>
<td>Absent in 25 g</td>
<td>Absent in 25 g</td>
<td>Absent in 25 g</td>
<td>Absent in 25 g</td>
<td>KS ISO 7937</td>
</tr>
</tbody>
</table>
8 VETERINARY DRUGS RESIDUES

8.1 The products covered by this standard shall comply with the maximum residue limits specified in CAC/MRL 2: Maximum Residue Limits for Veterinary Drugs in Food.

9 LIMITS FOR HEAVY METAL CONTAMINANTS

9.1 Offal shall not contain heavy metal contaminants in excess of the limits given in Table 2 when tested by methods mentioned.

Table 3 — Heavy metal contaminants limits for offal

<table>
<thead>
<tr>
<th>SL No.</th>
<th>Contaminants limits</th>
<th>Maximum limits Ppm</th>
<th>Red offal-Heart, liver kidney, spleen, lungs, trachea, testicles, tongue</th>
<th>Green offal-stomach, gizzard, intestines</th>
<th>Test methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Arsenic (Ar)</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>AOAC 986.15 EN14332, 14627</td>
</tr>
<tr>
<td>II.</td>
<td>Lead (Pb)</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>AOAC 999.10, 999.11, 986.15 EN14082, 14083,14084</td>
</tr>
<tr>
<td>III.</td>
<td>Cadmium</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>AOAC 986.15, 999.11,973.34 EN 14082,18083,14084</td>
</tr>
<tr>
<td>IV.</td>
<td>Mercury</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>AOAC 971.21</td>
</tr>
</tbody>
</table>

10.2 Labelling

10.2.1 The labeling, promotion and presentation of a material or article shall not mislead the consumers.

10.2.2 Labelling of packages of offal shall be done in accordance with the requirements stipulated in KS EAS 38, *Labelling of pre-packaged foods* and shall include the following:

a) Name of the product

b) Name of the animal from which the offal is derived

c) name, location and address of manufacturer;

d) net weight, in g or kg;

e) date of production/packaging;

f) expiry date;
g) batch number;
h) storage conditions;
i) country of origin
j) vet approval mark

Annex:

<table>
<thead>
<tr>
<th>Name of offal</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver</td>
<td><img src="image1.png" alt="Liver Image" /></td>
</tr>
<tr>
<td>Kidneys</td>
<td><img src="image2.png" alt="Kidneys Image" /></td>
</tr>
<tr>
<td>Stomachs</td>
<td><img src="image3.png" alt="Stomachs Image" /></td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
</tr>
<tr>
<td>----------------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Tongue</strong></td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Heart</strong></td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Lungs</strong></td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Small intestines</strong></td>
<td>![Image]</td>
</tr>
</tbody>
</table>
Large intestines