Carcasses and meat cuts - Specification

Part 4: Camel
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TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

- Ministry of Agriculture, Livestock and Fisheries - Directorate of Livestock Production
- Ministry of Agriculture, Livestock and Fisheries - Directorate of Veterinary Services
- Kenya Camel Association (KCA)
- University of Nairobi (UON)
- Kenya Industrial Research and Development Institute (KIRDI)
- Kenya Agricultural and Livestock Research Organization (KARLO)
- International Livestock Research Institute (ILRI)
- Kenya Livestock Marketing Council (KLMC)
- Farmers Choice (K) Ltd
- Consumer Information Network
- Ministry of Health - Food Safety Unit
- Ministry of Industry, Trade and Cooperatives
- National Public Health Laboratories
- Government Chemist's Department
- Alpha Fine Foods Limited
- Quality Meat Packers Limited
- Kenchic (K) Ltd.
- Kenya Meat Commission
- Kenya Nut Limited – Morendat Farm
- Choice Meats Limited
- Kenya Bureau of Standards (KEBS) - 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.

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KENYA STANDARD

Carcasses and meat cuts - Specification

Part 4: Camel
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 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 of the Laws of Kenya.

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

This Kenya Standard specifies the quality requirements, safety requirements and sampling and analysis of camel carcasses and cuts meant for human consumption. The standard also outlines the major portions of meat cuts from the carcasses for sale.

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 22000:2005 Food safety management systems - Requirements for any organization in the food chain.
III. KS EAS 151 - Hazard analysis critical control points (HACCP).
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 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.
VIII. KS ISO 6888-1: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.
IX. KS ISO 6579 Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp.
X. KS ISO 7937 Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of Clostridium perfringens — Colony-count technique.
XIII. 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
XV. KS EAS 12 Standard for portable (drinking water)
XVI. KS ISO 18593

3. **Definitions**

3.1 **Carcass**— the body of any slaughtered animal after bleeding and dressing.

3.2 **Dressed or dressing**— The removal of head, hide or skin, viscera, genital or gums, urinary bladder and feet up to the carpal and tarsal joints and udder of lactating animals that have calved or are in advanced pregnancy and where necessary splitting of the carcass lengthwise.

3.3 **Splitting**— dividing the carcass lengthwise into two sides.

3.4 **Carcass weight** – is the weight (kg) of the dressed body of an animal at the end of the slaughter line.

3.3.1 **Hot dressed weight (HDW)** is the weight (kg) of the dressed body of an animal (carcass) at the end of the slaughter line within one hour of slaughter.

3.3.2 **Cold dressed weight (CDW)** – is the weight of the carcass following chilling; also called cold carcass weight

3.4. **Ageing** – is the holding of carcasses or primal joints at refrigerated temperatures 0 to 4 °C to improve eating quality (particularly tenderness and flavour)
3.5 Conformation – is the overall thickness of muscle and fat in relation to the size of an animal’s skeleton, i.e. the “shape” of the carcass profile and degree of muscularity.

3.6 Eating quality- refers to the organoleptic factors influencing consumer acceptance and enjoyment of the product. The main eating quality attributes of meat are tenderness, juiciness, flavour and aroma.

3.7 Grading - is the categorization of a carcass according to quality standards.

3.8 Bull - a male camel
3.9 Cow - female camel
3.10 Heifer - female camel that has not calved
3.11 Steer - castrated male camel of unto six years of age.
3.12 Bullock - castrated male camel over 6 years of age.
3.13 Camel veal - is meat of a calf, of either sex of up to nine months of age.
3.14 Wet ageing (wet aged meat)- is meat that has typically been aged in a vacuum sealed bag to retain its moisture
3.15 Dry ageing (dry aged meat) - is meat that has been hung or placed on a rack to dry for a specified amount of time. Is the process by which carcasses and meat cuts are aged by being hanged or placed on a rack to dry for several days or weeks (specified amount of time)
3.16 Primal cuts - are pieces of meat initially separated from the carcass of an animal during butchering.

3.17 Camel- A camel is an even-toed ungulate with padded feet in the genus Camelus, bearing distinctive fatty deposits known as “humps” on its back. There are two domesticated species of camel, which are: the dromedary, or one-humped camel (C. dromedarius), which inhabits the Middle East and the Horn of Africa; and the Bactrian, or two-humped camel (C. bactrianus), which inhabits Central Asia

4 General Requirements

4.1 Camel from which meat is derived shall be slaughtered in a hygienically managed slaughter house. The slaughter shall be supervised by a competent authority. The animals and carcasses thereof shall be subjected to ante-mortem and post-mortem veterinary inspection as prescribed in the Meat Control Act, Cap. 356 of the Laws of Kenya and shall comply with KS 2299.

4.2 The inspected carcasses shall bear suitable marks of such inspection, the symbol and/or number of the establishment where they were prepared. The marking ink used shall be food grade and shall be approved by the competent authority.

4.3 The camel meat shall be prepared in a plant which is regularly operated under supervision of the competent authority.

4.4 The camel meat shall be prepared, handled fresh or chilled or frozen, and then delivered fresh or chilled or frozen, under hygienic conditions.

5. Preparation of camel carcasses and cuts
5.1. Camel carcasses and cuts shall be neatly butchered, trimmed, weighed, properly labelled and shall be free from bruises or blemishes of any kind. They shall be delivered in good condition and shall show no evidence of deterioration at the time of delivery.

5.2. Chilling

5.2.1. Fresh camel carcasses sides shall be pre-chilled to temperatures of between 4 °C and 7 °C within 24 hours. Carcasses and cuts meant for chilling shall be further chilled to temperatures of -2 °C to 4 °C and should be consumed within a period of 4 weeks.

5.3 Freezing and storage

5.3.1 The camel carcasses sides or cuts shall be pre-chilled before freezing and the freezing shall be at temperatures between minus (-) 18 °C and (-) 12 °C at the highest, within three days.

5.3.2 Frozen camel carcasses sides or cuts shall be stored at temperatures between minus -18 °C and -12 °C at the highest and the frozen product shall be consumed within 12 months.

5.4 The following requirements shall apply to the specified types of camel carcasses or cuts:

5.4.1 Type A: Fresh Carcass - the deepest part of the carcass near the bone shall be held at ambient temperature when delivered and shall show no evidence of deterioration.

5.4.2 Type B: Fresh-Chilled Carcass - the carcass shall be chilled so that the temperature at the deepest portion of the flesh near the bone shall be between -2 °C and 4 °C and shall show no evidence of deterioration.

5.4.3 Type C: Fresh-Frozen Carcass - the carcasses shall be frozen solid at -12 °C to -18 °C when stored and during delivery and they shall show no evidence of thawing, refreezing or deterioration.

5.4.4 Type D: Camel Cuts; Fresh - shall be prepared from fresh carcasses of Type A and held at ambient temperature. The cuts shall be well trimmed and clean with surplus fat removed.

5.4.5 Type E: Camel Cuts, Fresh, Chilled - these shall be obtained from carcasses of Type A and chilled as under 5.4.2 or from carcasses of Type B.

5.4.6 Type F: Camel Cuts, Fresh, Frozen - these shall be obtained from the carcasses of Type A or Type B and frozen solid (see 5.4.3).

5.5 Ageing

5.5.1 Wet aged carcass side, [primal and fabricated cuts] shall be aged in vacuum sealed bags at a temperature of 0°C to 4°C for a period of upto 4 weeks.

5.5.2 Dry aged carcass side, [primal and fabricated cuts], shall be aged at 0 °C to 4 °C.

6. Hygiene requirements


6.2 All workers shall use appropriate personal protective equipment that does not contaminate the product.

6.3 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.
6.4 Necessary precautions shall be taken to prevent incidental contamination of the product from soiled and/or dirty equipment or from persons suffering from injuries.

6.5 All equipment coming into contact with raw material or product in the course of manufacture shall be kept clean.

6.6 Adequate supply of running potable cold and steam or boiling water and shall comply with KS EAS 12, and other equipment necessary for proper cleaning of machinery/equipment shall be available.

6.7 The equipment shall be cleaned, sanitized and/or disinfected by using an appropriate food grade agent or with hot water with the temperature above 82 °C.

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 Sampling for microbial analysis

7.2.1 Samples shall be taken from processing, storage areas, equipment used in food production or at point of sale, when such sampling is necessary for ensuring that the criteria are met. In that sampling the KS ISO 18593 shall be used as a reference method.

7.3 Camel carcasses and Camel Cuts shall comply with the microbiological requirements given in Table 1.

Table 1 - Microbiological limits for camel carcasses and cuts

<table>
<thead>
<tr>
<th>SL No.</th>
<th>Micro-organism</th>
<th>Max. limits</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Aerobic colony count – cfu/g</td>
<td>$10^6$</td>
<td>KS ISO 4833</td>
</tr>
<tr>
<td>II.</td>
<td>E. coli per g</td>
<td>$10^2$</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>KS ISO 6888-1</td>
</tr>
<tr>
<td>IV.</td>
<td><em>Clostridium perfringenes</em> (For vacuum packed products)</td>
<td>Absent in 25 g</td>
<td>KS ISO 7937</td>
</tr>
<tr>
<td>V.</td>
<td>Salmonella,</td>
<td>Absent in 25 g</td>
<td>KS ISO 6579</td>
</tr>
<tr>
<td>VI.</td>
<td><em>Listeria monocytogenes</em></td>
<td>Absent in 25 g</td>
<td>KS ISO 11290-1</td>
</tr>
</tbody>
</table>

7.4 Aged camel carcasses and camel cuts shall comply with the microbiological requirements given in Table 2.

Table 2 - Microbiological limits for aged camel carcasses and cuts
8. Residues of veterinary drugs and pesticides

8.1 The products covered by this standard shall comply with the maximum residue limits specified in KS CAC/MRL 2- Maximum Residue Limits for Veterinary Drugs in Food. When analyzed using the appropriate approved methods, the products shall not contain veterinary drug residue above the approved limits.

9. Limits for heavy metal contaminants

9.1 Camel carcasses and cuts shall not contain heavy metal contaminants in excess of the limits given in Table 3 when tested by methods mentioned.

Table 3 — Heavy metal contaminants limits for camel carcasses and cuts

<table>
<thead>
<tr>
<th>SL No.</th>
<th>Contaminants limits</th>
<th>Maximum limits Ppm</th>
<th>Test methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Arsenic (Ar)</td>
<td>0.1</td>
<td>AOAC 986.15, EN 14332, EN 14627</td>
</tr>
<tr>
<td>II.</td>
<td>Lead (Pb)</td>
<td>0.1</td>
<td>AOAC 999.10, AOAC 999.11, AOAC 986.15 EN 14082, EN 14083, EN 14084</td>
</tr>
<tr>
<td>III.</td>
<td>Cadmium</td>
<td>0.05</td>
<td>AOAC 986.15, 999.11, 973.34 EN 14082, EN 14083, EN 14084</td>
</tr>
<tr>
<td>IV.</td>
<td>Mercury</td>
<td>0.03</td>
<td>AOAC 971.21</td>
</tr>
</tbody>
</table>

10. Packaging and labelling

10.1 Packaging

Packaging of fresh, chilled and frozen products shall be done in food grade packaging materials that protect the meat product from any physical, microbiological, chemical or any other type of contamination during storage, distribution and handling.

10.1.1 Vacuum-packed cuts shall be delivered intact.

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 lamb and mutton carcasses and cuts shall be done in accordance with the requirements stipulated in KS EAS 38 and shall include the following:

a) name of the product;
b) name, location and address of manufacturer;
c) net weight, in g or kg;
d) date of production/packaging;
e) expiry date;
f) batch number;
g) storage conditions;
h) country of origin; and
i) approval veterinary mark.

ANNEX 1: CAMEL CUTS