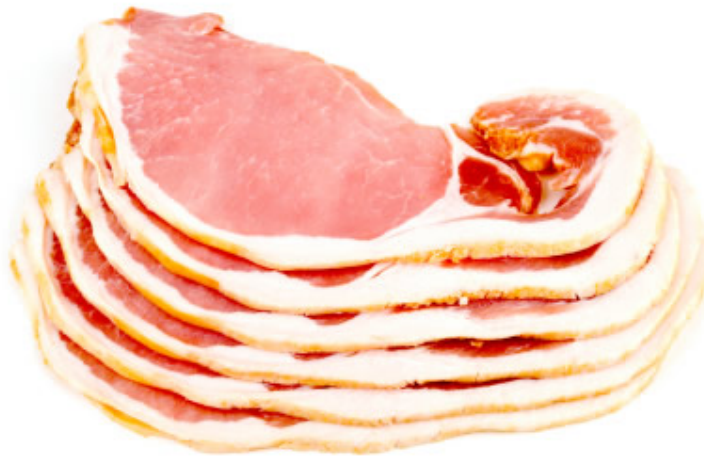




CD/K/689:2010
ICS 67.120

EAST AFRICAN STANDARD

Canned bacon rashers — Specification



EAST AFRICAN COMMUNITY

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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Introduction

In the preparation of this East African Standard, the following sources were consulted extensively:

IS 4950:1968(R2000), *Specification for Bacon Rashers, Canned*

Codex Alimentarius website: http://www.codexalimentarius.net/mrls/pestdes/jsp/pest_q-e.jsp

USDA Foreign Agricultural Service website: <http://www.mrlatabase.com>

USDA Agricultural Marketing Service website: <http://www.ams.usda.gov/AMSV1.0/Standards>

USDA Plant Inspectorate Service website: http://www.aphis.usda.gov/import_export/plants

European Union: http://ec.europa.eu/sanco_pesticides/public

Assistance derived from these sources is hereby acknowledged.

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Canned bacon rashers — Specification

1 Scope

This standard prescribes the requirements and the methods of sampling and test for canned bacon rashers.

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.

AOAC Official Method 931.06:1931, *Phosphorus (Total) (P_2O_5) in Eggs*

CAC/RCP 1, *Recommended international code of practice — General principles of food hygiene*

CD-K-670:2010, *Bovine (beef) meat — Carcasses and cuts*

CD-K-671:2010, *Caprine (goat) meat — Carcasses and cuts*

CD-K-672:2010, *Ovine (sheep) meat — Carcasses and cuts*

CD-K-673:2010, *Porcine (pig) meat — Carcasses and cuts*

CD-K-692:2010, *Mutton and goat meat canned in brine — Specification*

CD-K-675:2010, *Edible meat co-products*

CD-K-683:2010, *Smoked bacon — Specification*

CD-K-692:2010, *Mutton and goat meat canned in brine — Specification*

CD-K-693:2010, *Animal casings — Specification*

CD-K-697:2010, *Code of hygienic practice for meat*

CD-K-699:2010, *Veterinary drugs residues in foods — Maximum residue limits*

CD/K/700:2010, *Ante-mortem and post-mortem inspection of meat animals — Code of practice*

EAS 5, *Refined white sugar — Specification*

EAS 12, *Drinking (potable water) — Specification*

EAS 35, *Edible salt — Specification*

EAS 38, *Labelling of prepackaged foods — Specification*

EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

EAS 41, *Fruits, vegetables and derived products — Sampling and methods of test*

EAS 103, *Schedule for permitted food additives*

EAS 123, *Distilled water — Specification*

- ISO 936, *Meat and meat products — Determination of total ash*
- ISO 937, *Meat and meat products — Determination of nitrogen content (Reference method)*
- ISO 1442, *Meat and meat products — Determination of moisture content (Reference method)*
- ISO 1443, *Meat and meat products — Determination of total fat content*
- ISO 1444, *Meat and meat products — Determination of free fat content*
- ISO 1736, *Dried milk and dried milk products — Determination of fat content — Gravimetric method (Reference method)*
- ISO 1737, *Evaporated milk and sweetened condensed milk — Determination of fat content — Gravimetric method (Reference method)*
- ISO 1841-1, *Meat and meat products — Determination of chloride content — Part 1: Volhard method*
- ISO 1841-2, *Meat and meat products — Determination of chloride content — Part 2: Potentiometric method*
- ISO 2294, *Meat and meat products — Determination of total phosphorus content (Reference method)*
- ISO 2917, *Meat and meat products — Measurement of pH — Reference method*
- ISO 2918, *Meat and meat products — Determination of nitrite content (Reference method)*
- ISO 3091, *Meat and meat products — Determination of nitrate content (Reference method)*
- ISO 3496, *Meat and meat products — Determination of hydroxyproline content*
- ISO 4134, *Meat and meat products — Determination of L-(+)- glutamic acid content — Reference method*
- ISO 4831, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of coliforms — Most probable number technique*
- ISO 4832, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*
- ISO 4833, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony-count technique at 30 degrees C*
- ISO 5537, *Dried milk — Determination of moisture content (Reference method)*
- ISO 5553, *Meat and meat products — Detection of polyphosphates*
- ISO 5554, *Meat products — Determination of starch content (Reference method)*
- ISO 5985, *Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid*
- ISO 6491, *Animal feeding stuffs — Determination of phosphorus content — Spectrometric method*
- 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*

ISO 8156, *Dried milk and dried milk products — Determination of insolubility index*

ISO 9390, *Water quality — Determination of borate — Spectrometric method using azomethine-H*

ISO 13493, *Meat and meat products — Determination of chloramphenicol content — Method using liquid chromatography*

ISO 13496, *Meat and meat products — Detection of colouring agents — Method using thin-layer chromatography*

ISO 13730, *Meat and meat products — Determination of total phosphorus content — Spectrometric method*

ISO 13965, *Meat and meat products — Determination of starch and glucose contents — Enzymatic method*

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*

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*

3 Definitions and presentation

3.1 Definitions

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

3.1.1

meat

the uncured, sound and wholesome flesh of the pig, namely, pork, used as food (see CD-K-673:2010)

3.1.2

offal

this includes brain, fries (liver), gut, paunches, udders, sweetbreads (thymus, pancreas) tripe, spleen, lungs, salivary glands, lymphatic glands, testicles, uterus, ovaries, skin (rind), cartilage and bony tissue

3.2 Description

For the purpose of this standard, the material shall be of the following types:

- a) Bacon rashers (middle and shoulder), and
- b) Streaky rashers.

4 Requirements

4.1 Hygienic requirements

The material shall be prepared and handled under strict hygienic conditions by persons free from contagious and infectious diseases and only in premises maintained in a thoroughly clean and hygienic condition and having adequate and safe water supply (see EAS 39) and duly approved and licensed by the public health authorities concerned. All workers shall use clean, washed, white clothings. Necessary precautions shall be taken to prevent incidental contamination of the product from soiled equipment or from personnel suffering from injuries.

4.1.1 All equipment coming in contact with raw materials or products in the course of manufacture shall be kept clean. An ample supply of steam and water, hose, brushes and other equipment,

necessary for proper cleaning of machinery and equipment shall be available. The equipment may be sterilized by immersion in, or swabbing with hypochlorite or other suitable chlorine solution.

4.1.2 Quality of water used for processing shall conform to EAS 12.

4.2 Raw materials

4.2.1 Bacon

4.2.1 Bacon

The bacon from which rashers are derived shall be properly cured and smoked and shall not be overfat. The bacon with more than 2.5 cm thick layer of adipose tissue (back fat) shall be taken as over fat. It shall conform to CD-K-683-2010.

4.2.2 Salt

Salt used shall conform to EAS 35. Salt shall be not less than 1.5 percent and not more than 3.5 percent in the finished product when tested according to the method prescribed in Annex A.

4.2.3 Nitrate and nitrite

The nitrate content shall not exceed 0.05 percent by weight (expressed as sodium nitrate) and the nitrite content 0.02 percent by weight (expressed as sodium nitrite) in the finished product when tested according to the methods prescribed in Annexes B and C respectively.

4.2.4 Sugar

Sugar, if used, shall conform to EAS 5.

4.3 Preparation and processing

4.3.1 The rashers shall be evenly cut, and shall be of even thickness. Irregular slices shall not be included.

4.3.2 The containers shall be thoroughly cleaned by means of hot water jets or other approved methods and then kept inverted to drain and dry before filling. If the cans are lacquered, the lacquer used shall be heat resistant and of such quality that it does not impart any foreign unpleasant taste and smell to the contents of the can; and does not peel off during processing and storage of the product. The lacquer shall not be soluble in fat or brine to any extent. The cans shall show no evidence of rusting.

4.3.3 The rashers shall be uniformly placed on a sheet of parchment paper or cellulose film or butter paper, folded up and placed in cans.

4.3.4 The filled cans shall be exhausted and hermetically sealed. Processing shall be at such temperature and for such length of time as will ensure proper cooking and preservation of the finished product.

4.4 Finished product requirements

4.4.1 Vacuum Requirements — The cans shall give a vacuum of not less than 10 cmHg at 27 °C ± 2 °C under normal atmospheric pressure when tested according to the method prescribed in Annex D.

4.4.2 The product shall have a pleasant flavour, characteristic taste, neither excessive salty nor sweetish. The product shall be free from any foreign odour or flavour, such as, putrid, stale, fermented, rancid, musty and staggy pork odour.

4.4.3 The product shall be free from foreign material, such as dirt, insect parts, wood, glass and metal particles.

4.4.4 The material shall also conform to the limits for metallic impurities and microbiological activity as prescribed in Table 1.

Table 1 — Microbiological and heavy metal limits for canned pork sausages

Type of contaminant		Requirement	Method of test
(i)	Microbiological requirements	Shall be commercially sterile	Annex G of CD/K/689:2010
(ii)	Arsenic, mg/kg, max	1.0	EAS 41
(iii)	Copper, mg/kg, max	15.0	EAS 41
(iv)	Tin, mg/kg, max	140.0	EAS 41
(v)	Mercury, mg/kg, max	0.5	EAS 41
(vi)	Lead, mg/kg, max	5.0	EAS 41
(vii)	Cadmium, mg/kg, max	0.3	EAS 41
(viii)	Zinc, mg/kg, max	19.0	EAS 41

5 Packing and marking

5.1 Packing

5.1.1 Packing in cans

Subject to the agreement between the purchaser and the vendor, each can (if not lacquered for meat packing) shall be coated on the inner side with edible gelatin, lard or lined with vegetable parchment paper before filling the product.

5.1.2 Packing in cases

Unless otherwise specified, cans shall be packed in cases sufficiently strong to withstand rough handling during transit.

5.2 Marking

5.2.1 The cans may be labelled either by printing or stencilling on the cans themselves or by pasting printed labels as agreed to between the purchaser and the vendor. The label shall bear the following information:

- Name and type of the material,
- Name and address of the manufacturer,
- Net weight of the contents of the container,
- Batch number or code number — embossed indelibly on the container, and
- Licence number given by the authorities.

5.2.2 Each container may also be marked with a Certification Mark.

6 Sampling

Sampling of bacon rashers, canned, shall be done according to the method prescribed in Annex C of CD/K/687:2010.

7 Tests

Tests shall be carried out as prescribed in 4.2.2, 4.2.3, 4.4.1 and the relevant appendices specified in Table 1.

Annex A (normative)

Determination of sodium chloride

A.1 Reagents

A.1.1 Sodium carbonate solution — 5 percent (w/v).

A.1.2 Dilute nitric acid — (1: 4), freed from lower oxides of nitrogen by boiling till it becomes colourless.

A.1.3 Standard silver nitrate — 0.1 N.

A.1.4 Nitrobenzene

A.1.5 Ferric alum indicator solution — A saturated solution of ferric alum $[\text{FeNH}_4(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}]$.

A.1.6 Standard potassium thiocyanate solution — 0.1 N.

A.2 Procedure

A.2.1 Preparation of sample — Pass the material through a mincing machine twice to ensure thorough mixing. Transfer the minced sample to a large porcelain mortar and grind with a pestle for 5 minutes to ensure homogeneity.

A.2.2 Weigh accurately about 5 g of the finely ground and thoroughly mixed sample in a platinum dish and add 20 ml of the sodium carbonate solution. Evaporate to dryness and ignite as thoroughly as possible at a temperature not exceeding dull redness. Extract with hot water, filter and wash. Return the residue to the platinum dish and ignite to ash. Dissolve the ash in the dilute nitric acid. Filter and wash the residue thoroughly. Collect the filtrate and washings and add to the water extract. To this solution, add a known volume of the standard silver nitrate solution in slight excess. Stir well, add 5 ml of nitrobenzene, shake and add 5 ml of the ferric alum indicator solution and a few millilitres of the dilute nitric acid. Titrate the excess silver nitrate with the standard potassium thiocyanate solution until permanent light brown colour appears.

A.3 Calculation

A.3.1 Sodium chloride, percent by weight =
$$\frac{5.85(V_1N_1 - V_2N_2)}{W} \times 100$$

where

V_1 = volume in ml of the standard silver nitrate solution added,

N_1 = normality of the standard silver nitrate,

V_2 = volume in ml of the standard potassium thiocyanate solution used,

N_2 = normality of the standard potassium thiocyanate, and

W = weight in g of the material taken for the test.

Annex B (normative)

Determination of nitrate

B.1 Apparatus

B.1.1 Photoelectric colorimeter

B.2 Reagents

B.2.1 Standard silver sulphate solution — Dissolve 4.397 g of silver sulphate (Ag_2SO_4) nitrate-free, in one litre of water. One millilitre of this solution is equivalent to one milligram of chlorine.

B.2.2 Alumina cream

B.2.3 Phenol disulphonic acid solution — Dissolve 25 g of pure white phenol in 150 ml of sulphuric acid. Add 75 ml of fuming sulphuric acid (13 to 15 percent of SO_3) and heat for 2 hours at 100 °C.

B.2.4 Ammonium hydroxide — Concentrated.

B.2.5 Standard nitrate solution — Dissolve 0.607 g of sodium nitrate (analytical reagent grade) in one litre of nitrate-free water. Evaporate 50 ml of this solution to dryness in a porcelain dish. When cool, treat with 2 ml of phenol disulphonic acid solution, grind and stir with a glass rod to ensure intimate contact and dilute to 500 ml in a graduated flask. One millilitre of this solution contains 0.01 mg of nitrogen or 0.04mg of nitrate (NO_3) or 0.06 mg of sodium nitrate (NaNO_3).

B.3 Procedure

B.3.1 Extract 100 g of the thoroughly prepared sample by boiling 6 to 7 times, with successive 35- to 50-ml portions of water. Decant the extract through muslin cloth or filter paper into an evaporating basin and evaporate to a volume of about 35 ml. Make up the volume to 50 ml. Take a 5-ml aliquot and make up the volume to 100 ml. Take 2 ml of this solution for the test and dilute it to 50 ml in a 100-ml flask. Add sufficient standard silver sulphate solution to precipitate all but about 0.5 mg of chlorine. Heat to boil and allow to settle or add a little alumina cream, filter and wash with small quantities of hot water. Evaporate the filtrate to dryness in a porcelain dish on a steam-bath. Cool and treat with 2 ml of the phenol disulphonic acid solution. Dilute with water and slowly add ammonium hydroxide solution until maximum colour development occurs. Filter, if necessary. Transfer to the colorimeter tube and read the colour. Prepare at least three replications and take the average.

B.3.2 Prepare a series of standards by diluting suitable aliquots of the standard nitrate solution. Develop and read the colour in the same manner as in the case of the test solution and prepare a standard curve. From the curve, determine the weight of nitrate present in the test solution and calculate the percentage of nitrate in the sample.

Annex C
(normative)

Determination of nitrite

C.1 Apparatus

C.1.1 Photoelectric Colorimeter or Spectrophotometer

C.2 Reagents

C.2.1 Mercuric Chloride Solution (HgCl₂) — Saturated.

C.2.2 Modified Griess Reagent — Dissolve 0.5 g of sulphanilic acid in 150 ml of acetic acid (15 percent by volume). Boil 0.1 g of a-naphthylamine in 20 ml of water until dissolved and pour while hot into 150 ml of dilute acetic acid. Mix the two solutions and store in a brown glass bottle.

C.2.3 Standard Nitrite Solution — Dissolve 1.1 g of silver nitrite (AgNO₂) in nitrite-free water. Precipitate the silver with sodium chloride solution. Dilute to one litre, mix and allow to settle. Dilute 100 ml of the liquid to one litre and then further dilute 10 ml of this solution to one litre using nitrite-free water in each case. One milliliter of the final solution contains one microgram of nitrogen or five micrograms of sodium nitrite (NaNO₂).

C.3 Procedure

C.3.1 Weigh accurately 5 g of the prepared sample into a 50-ml beaker. Add about 40 ml of nitrite-free water heated to 80°C. Mix thoroughly with glass rod, taking care to break up all the lumps and transfer to a 500-ml graduated flask. Wash the beaker and the rod with successive portions of the hot water, adding all the washings to the flask. Add sufficient hot water to bring the volume to about 300 ml. Transfer the flask to a steam-bath and let it stand for two hours, shaking occasionally. Add 5 ml of the mercuric chloride solution and mix. Cool to room temperature, dilute to the mark with nitrite-free water and mix again. Filter, dilute suitable aliquot to the mark in a 50-ml graduated flask. Add 2 ml of the modified Griess reagent, mix and allow the colour to develop for an hour. Transfer a suitable portion of the solution to the photometer cell and determine the absorbance at a wave length of 520 mp, setting the instrument to zero absorbance with blank of 50 ml water plus 2 ml of the modified Griess reagent.

C.3.2 Prepare a series of standards by diluting suitable aliquots of the standard nitrite solution to the mark in a 50-ml graduated flask, add 2 ml of the modified Griess reagent and proceed in the same manner as with the test solution. From the absorbance values of the standard solutions, prepare a standard curve and determine the weight of nitrite present in the test solution and calculate the percentage of nitrite in the sample.

Annex D
(normative)

Recording of vacuum of the cans

The vacuum in the can may be determined with an electric recording type machine or a vacuum gauge of the piercing type without opening the can.

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