



EAST AFRICAN STANDARD

Fish pickles — 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

Fish pickles, a traditional fish product, is now also gaining popularity worldwide with exports of this commodity have been increasing significantly over the years.

Fish pickles are prepared by cutting the edible portions of the fish into small pieces, followed by deep frying in vegetable oil and subsequently mixing with preservatives, along with fried condiments and spices for flavour development. The material is then generally kept for a minimum of 24 h for maturing before packing.

Keeping in mind the export potential and the domestic consumption, this standard has been formulated to ensure the quality of the product. In order to safeguard the health of the consumers, this standard among other requirements, prescribes also the microbiological and heavy metal requirements.

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

IS 14515:1998(R2003), *Fish Pickles — Specification*

CAC/RCP 52:2003(Rev. 4:2008), *Code of practice for fish and fishery products*

IS 4303-1:1975, *Code of hygienic conditions for fish industry — Part 1: Pre-processing stage*

IS 4303-2:1975, *Code of hygienic conditions for fish industry — Part 2: Canning stage*

Codex Alimentarius website: http://www.codexalimentarius.net/mrls/vetdrugs/jsp/vetd_q-e.jsp

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

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

European Union: http://ec.europa.eu/enterprise/sectors/pharmaceuticals/veterinary-use/maximum-residue-limits/index_en.htm

Assistance derived from these sources is hereby acknowledged.

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Fish pickles — Specification

1 Scope

This standard prescribes requirements and method of sampling and test for fish pickles.

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.

CAC/GL 21, *Principles for the establishment and application of microbiological criteria for foods*

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

CAC/GL 30, *Principles and guidelines for the conduct of microbiological risk assessment*

CAC/GL 31, *Guidelines for the sensory evaluation of fish and shellfish in laboratories*

CD/K/572:2010, *Fish and fisheries products — Methods of sampling*

CAC/RCP 52[CD/K/521:2010], *Code of practice for fish and fishery products*

EAS 35, *Edible salt — Specification*

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

EAS 38, *Labelling of prepackaged foods — Specification*

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 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 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp.*

ISO 6887-1, *Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 1: General rules for the preparation of the initial suspension and decimal dilutions*

ISO 6887-3, *Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 3: Specific rules for the preparation of fish and fishery products*

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*

ISO 6888-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 2: Technique using rabbit plasma fibrinogen agar medium*

ISO 6888-3, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 3: Detection and MPN technique for low numbers*

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 7937, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of Clostridium perfringens — Colony-count technique*

ISO 13720, *Meat and meat products — Enumeration of Pseudomonas spp.*

ISO 17239, *Fruits, vegetables and derived products — Determination of arsenic content — Method using hydride generation atomic absorption spectrometry*

ISO 6634, *Fruits, vegetables and derived products — Determination of arsenic content — Silver diethyldithiocarbamate spectrophotometric method*

ISO 21567, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Shigella spp.*

ISO/TS 21872-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp. — Part 1: Detection of Vibrio parahaemolyticus and Vibrio cholerae*

ISO/TS 21872-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp. — Part 2: Detection of species other than Vibrio parahaemolyticus and Vibrio cholerae*

ISO 11290-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of Listeria monocytogenes — Part 1: Detection method*

ISO 11290-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of Listeria monocytogenes — Part 2: Enumeration method*

3 Description

3.1 The fish pickle shall possess a good, uniform colour and appearance and shall be practically free from defects, visible fungal growth and disintegration of meat.

3.2 The material shall possess a good texture, shall not be unduly hard or tough and shall be free from development of any softening.

4 Requirements

4.1 Raw materials

The material shall be prepared from the following ingredients:

- a) Edible fish;
- b) Spices and condiments such as ginger, garlic, chillies, curry powder;

- c) Edible common salt (see EAS 35); and
- d) Preservation media
 - i) Vinegar (4 percent acetic acid), and
 - ii) Edible vegetable oils.

4.2 The product shall possess the characteristic pleasant aroma and flavour and shall be devoid of any objectionable off-taste, smell or odour.

The material shall be free from artificial colouring matter and firming agents other than edible common salt and vinegar.

4.3 Hygiene

The fish pickle shall be prepared and packed under hygienic conditions complying with CAC/RCP 1, CAC/RCP 52 and relevant health regulations.

4.4 The material shall conform to the requirements prescribed in Table 1.

Table 1 — Microbiological and heavy metal limits for fish pickles

Characteristic	Requirement	Method of test
(1)	(2)	(3)
(i) Fluid portion, per cent by mass of net mass, max	40	Annex A
(ii) pH	4.0 – 4.5	EAS 41
(iii) Acidity, as acetic acid of fluid portion, % mass, max	2.5 – 3.0	Annex B
iv) Total bacterial count/g, in the finished product, Max	1000	ISO 4833
v) <i>Escherichia coli</i> count/g, Max	Absent	ISO 7251
vi) Faecal <i>Streptococci</i> count/g, Max	Absent	Annex H
vii) Coagulase positive <i>Staphylococci</i> /g, Max	Absent	ISO 6888
viii) <i>Salmonella</i> , per 25 g	Absent	ISO 6579
ix) <i>Shigella</i> , per 25 g	Absent	ISO 21567
x) <i>Vibrio cholerae</i> , per 25 g	Absent	ISO/TS 21872
xi) <i>Listeria monocytogenes</i> , per 25 g	Absent	ISO 11290
xii) Histamine content, mg/100 g, max	20.0	Annex ___
xiii) Heavy metals:		
a) Mercury, mg/kg, Max	0.5	EAS 41
b) Copper, mg/kg, Max	20.0	EAS 41
c) Zinc, mg/kg, Max	50.0	EAS 41
d) Arsenic, mg/kg, Max	0.1	EAS 41
e) Lead, mg/kg, Max	0.3	EAS 41
f) Tin, mg/kg, Max		
(i) For product packed in tin plate	50.0	EAS 41
(ii) For product packed in other packing containers	250.0	EAS 41
g) Cadmium	0.3	EAS 41

5 Packing and marking

5.1 Packing

Fish pickles shall ordinarily be packed in glass containers or in food grade polyethylene pouches, as may be found suitable, so as to protect it from deterioration.

5.2 Marking

5.2.1 Each container shall be legibly and indelibly marked with the following information:

- a) Name of the material with the brand name, if any;
- b) Name and address of the processor;
- c) Batch or code number;
- d) Net mass;
- e) Date of packing;
- f) Date before which the contents should be consumed, be indicated by marking the words 'Use before (month and year);
- g) List of additives used; and
- h) Any other requirement as given OIML R87, *Quantity of product in prepackages*.

5.2.2 The product may also be marked with a Standard Mark.

6 Sampling

The method of drawing representative samples of the material for test and the criteria for conformity shall be according to the method prescribed in CD/K/572:2010.

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Annex A
(normative)**Determination of fluid portion****A.1 Procedure**

Transfer the contents of the fish pickle to a sieve of suitable mesh size (No. 18 or 20), press gently and keep till the fluid is collected.

A.2 Calculation

Fluid portion, percent by mass of the net mass of pickle = $\frac{\text{Mass of fluid (g)} \times 100}{\text{Net mass of pickle (g)}}$

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Annex B
(normative)

Determination of acidity of fluid portion

B.1 Reagents

B.1.1 Phenolphthalein Indicator Solution

Dissolve 1.0 g of phenolphthalein in 100 ml of 95 %, w/v alcohol.

B.1.2 Standard Sodium Hydroxide Solution — 0.1 N.

B.2 Preparation of sample

To the fluid collected as in A.1 add a pinch of activated charcoal and mix thoroughly. Keep for 5 min and then filter through a bed of glass wool or cotton wool. Centrifuge the filtered solution at 8000 or 10000 rev/min for 20 min. Decant the clear solution. Take 25 ml of this clear solution and dilute to 100 ml

B-2.2 Take a suitable aliquot of the solution (see B.2.1), add one drop of phenolphthalein indicator solution and titrate against the standard sodium hydroxide solution. Calculate the percentage of acidity of the fluid in terms of acetic acid from the relationship that 1 ml of 0.1 N sodium hydroxide = 0.006 g acetic acid.

Annex C
(normative)

Determination of sodium chloride in the pickle fluid

C.1 Reagents

C.1.1 Dilute nitric acid (1:4) free from lower oxides of nitrogen by boiling till colourless.

C.1.2 Ferric Alum Indicator Solution

A saturated solution of ferric alum ($\text{FeNH}_4(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$).

C.1.3 Standard Silver Nitrate Solution — 0.1 N.

C.1.4 Standard Ammonium Thiocyanate Solution — 0.1 N.

C.2 Procedure

C.2.1 Take a suitable aliquot of the clear solution (see B.2.1), add a known volume of standard silver nitrate solution in slight excess and then add 20 ml of dilute nitric acid. Boil gently on a hot plate or a sand bath until all solids except silver chloride dissolve. Cool and add 50 ml of distilled water (see EAS 123) and 5 ml of the ferric alum indicator solution and titrate against standard ammonium thiocyanate solution until light brown colour appears.

C.2.2 Calculation

Sodium chloride, in the fluid, percent by mass = $\frac{5.85 \times (V_1 N_1 - V_2 N_2)}{M}$

where

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

N_1 = normality of standard silver nitrate solution;

V_2 = volume, in ml, of standard ammonium thiocyanate solution used;

N_2 = normality of standard ammonium thiocyanate solution used; and

M = mass, in g, of the fluid.

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