



DEAS 745:2010
ICS 67.080.20

DRAFT EAST AFRICAN STANDARD

Potato crisps — Specification

EAST AFRICAN COMMUNITY

Draft for comments only — Not to be cited as East African Standard

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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Acknowledgement

This standard was developed with support from the Policy Analysis and Advocacy Programme (PAAP) of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). This was possible through a grant by the United States Agency for International Development (USAID). This support was used in the process of formulation and mobilization of stakeholders to review the standard in national and regional fora.

ASARECA is a non-political association of agricultural research institutes in: Burundi, DR Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania and Uganda. ASARECA serves as a platform for promoting regional research and in the sharing of benefits and spillovers that derive from such research. The mission of ASARECA is to *“Enhance regional collective action in agricultural research for development, extension and agricultural training and education, to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in Eastern and Central Africa”*.

Development of standards has been part of PAAP's contribution to changing the way business is done in crucial agricultural sectors to increase efficiency and/or reduce waste through rationalization and harmonization of policies, laws, regulations and procedures. Rationalization focuses on how countries conduct business in a given subsector, and determines what should be done to make the procedures and processes more efficient. Harmonization brings together regionally different approaches (policies, laws, regulations and procedures) into unified approaches that are applied across the countries. This harmonization process allows commodities and factors to move freely across national boundaries, thereby improving domestic and foreign investment by expanding markets beyond national borders. Over time this will lead to gradual attainment of seamless borders for trade in potatoes and potato products across the region.

Removal of regulatory bottlenecks to transboundary movement of potato products in the region will enhance competitiveness of trade and value addition in the sub-sector. It will improve the value chains by supporting product differentiation and hence increased trade in potato products in the region. This will ultimately contribute to incomes, employment generation and improved welfare in the region. This fits snugly with the aspirations of ASARECA as a key player contributing to economic development of the region.

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Potato crisps — Specification

1 Scope

This draft East African Standard specifies requirements and methods of sampling and test for crisps made from potato tubers (*Solanum tuberosum* L.)

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.

EAS 35, *Specification for edible (fortified) salt*

EAS 38, *General standard for labeling of prepackaged foods*

EAS 39, *Code of practice for hygiene in the food and drink manufacturing industry*

EAS 103, *Schedule of permitted food additives*

ISO 3960, *Animal and vegetable fats and oils — Determination of peroxide value*

EAS 321, *Edible oils and fats — Specification*

DEAS 748, *Fresh potatoes - Specification*

EAS 98, *Spices and condiments — Specification*

3 Product description

potato crisps

thin slices of peeled and washed potato tubers, deep-fried until crunchy

4 Essential quality and compositional requirements

4.1 Raw materials

The following materials shall be used in the manufacture of potato crisps:

- a) potato, conforming to DEAS 748; and
- b) edible oil or fat conforming to EAS 321

NOTE Using the oil several times may lead to poor quality and affect the safety of the crisps.

4.2 Optional ingredients

In addition to the essential ingredients specified in 4.1, the following optional ingredients may be added:

- a) spices and condiments conforming to EAS 98 and ;
- b) salt conforming to EAS 35;

4.3 General quality requirements

Potato crisps shall;

- a) shall be light yellow to golden brown in colour or typical colour of the permitted additive used,
- b) be generally uniform in size and symmetry,
- c) be well cooked, crispy and free from sogginess and excessive oil,
- d) have crispy texture and the external surface shall not show any noticeable separation from the inner portion,
- e) not be rancid, bitter and have off odours and flavours, and
- f) practically free from foreign matter, adulterants and any other blemish.

4.4 Defects

Potato crisps, when packed, shall not contain more than 10 % by mass of small pieces, slivers and irregular pieces.

Packed potato crisps shall have not more than 1 % of the crisps with the following defects:

- a) surface or internal pigmentation; and
- b) black specks and spots.
- c) blisters and
- d) callous areas.

4.5 Essential compositional requirements

Potato crisps shall conform to the requirements specified in Table 1.

Table 1— Chemical compositional requirements for potato crisps

Characteristic	Limit	Method of test
Moisture content, %, by mass, max.	5	Annex A
Free fatty acids, %, by mass on dry weight basis, max.	0.5	Annex B
Acid insoluble ash, % by mass on dry weight basis, max.	0.05	Annex C
Peroxide value, meq/oxygen per gram	0.5 mg/kg	EAS ISO 3960
Fat content on dry weight basis	35	
Sodium chloride (NaCl) on dry weight basis, %, max	2	

5 Food additives

Food additives may be used in the preparation of potato crisps in accordance with EAS 103.

6 Contaminants

6.1 Pesticide residues

Potato crisps shall conform to those maximum residue limits established by the Codex Alimentarius Commission for this commodity.

6.2 Other contaminants

Potato crisps shall comply with the maximum levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193).

7 Hygiene

Potato crisps shall be prepared and handled in hygienic manner in accordance with EAS 39 shall conform to microbiological limits in Table 3.

Table 3— Microbiological requirements for potato crisps

Micro-organism(s)	Maximum limit	Method of test
Total viable count, CFU per gram, max	10^3	EAS ISO
<i>Escherichia coli</i> , CFU per gram	Shall be absent	ISO 7251 ISO 4833;
<i>Salmonella</i>	Shall be absent	ISO 6579
Yeasts and moulds, CFU per gram	10^3	EAS ISO ISO 21527-2

8 Packaging

Before packaging, the crisps excess oil shall be removed. The crisps shall be packaged within a short time after frying so as to keep the crispy taste and texture of the crisps.

The product shall be packed in food grade materials that ensure the quality, safety and integrity throughout the shelf life.

9 Weights and Measures

Fresh sweet cassava shall be packaged in accordance with the Weights and Measures requirements of the destination country.

10 Labelling

In addition to the requirements of EAS 38, the following specific labelling requirements shall apply and shall be **legibly** and **indelibly** marked;

- common name of the product shall be "Potato crisps."
- If spiced the product shall be labelled "Spiced potato crisps";
- name, physical address and location of the manufacturer and /or trade/brand name;

- d) date of manufacture;
- e) best before date;
- f) country of origin;
- g) list of ingredients;
- h) net weight; and
- i) lot identification
- j) storage instructions
- k) Instructions on disposal of used package.
- l) salted or unsalted
- m) declaration of flavouring agent or spice used

11 Methods of test

The product covered by this standard shall be tested according to the methods of test indicated in this standard.

12 Criteria for conformity

A lot shall be declared as conforming to this standard if each sample inspected or analysed for quality requirement conforms to the provision of this standard.

Annex A (normative)

Determination of moisture content

A.1 Procedure

Weigh accurately 10 g of the material in a suitable moisture dish previously dried in an electric oven and weighed. Place the dish in an electric oven maintained at $105\text{ °C} \pm 1\text{ °C}$ for 5 h. Cool the dish in a desiccator and weigh with the lid on. Repeat the process of heating, cooling and weighing at half-hour intervals until the loss in weight between two successive weighings is less than 1 mg.

Record the lowest weight obtained.

A.2 Calculation and expression of results

$$\text{Moisture, percent by mass} = \frac{(M_1 - M_2) \times 100}{M_1 - M_3}$$

where,

M_1 is the mass, in grams, of the dish and sample before drying;

M_2 is the mass, in grams, of the dish and sample after drying;

M_3 is the mass, in grams, of the dish only.

Annex B (normative)

Determination of free fatty acids

B.1 Apparatus

Soxhlet fat extraction apparatus

B.2 Reagents

B.2.1 Petroleum ether, distilling below 65 °C, or ethyl ether

B.2.2 Alcohol potassium hydroxide, 0.1 N (use absolute or alcohol denatured with methanol, [MeOH])

B.2.3 Alcohol-ether mixture, equal volumes of 96 % alcohol and ethyl ether

B.2.4 Phenolphthalein solution, 1 % in alcohol or alcohol denatured with methanol (MeOH)
Add 0.3 ml per 100 ml mixture of alcohol-ether and add alcoholic KOH solution to a faint pink.

B.3 Procedure

Extract 10.00 g ± 0.01 g of the sample taken in a thimble with petroleum ether for about 4 h in a Soxhlet extraction apparatus. Completely evaporate the solvent from the extraction flask (weighed previously) on a steam bath, cool and weigh the extraction flask with the residue. Dissolve the residue in the extraction flask with the 50 ml of the alcohol-ether phenolphthalein solution. Titrate the dissolved extract, with standard potassium hydroxide solution, to a faint pink colour, which persists for 10 s. If emulsion is formed during titration, dispel by adding a second 50 ml portion of the alcohol-ether phenolphthalein solution.

Make a blank titration on 50 ml of the alcohol-ether phenolphthalein solution and subtract this value from the titration value of the sample. If the additional 50 ml portion of the alcohol-ether phenolphthalein solution is added, double the blank titration.

B.4 Calculation

Calculate the acid value from the following formula:

$$\text{Acid value (as oleic acid)} = \frac{56.1VN}{M}$$

where,

V is the volume, in millilitres, of standard potassium hydroxide solution used;

N is the normality of standard potassium hydroxide solution; and

M is the mass, in grams, of the material taken for the test.

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