

**DRAFT KENYA STANDARD**

**DKS 2841:2018**

ICS 67.060

**Arrowroot ( Taro) crisps — Specification**

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# DKS 2841:2018

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The following organizations were represented on the National Technical Committee:

University of Nairobi  
Agriculture and Food Authority- Food Cop directorate  
Kenya Agricultural & Livestock Research Organization  
Kenya Industrial Research & Development Institute  
National Potato Council of Kenya  
Propack Ltd.  
Graduate Africa Ltd  
Mhogo foods Ltd  
Food Science and Technology platform of Kenya  
Kenya Bureau of Standards — Secretariat

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

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PUBLIC REVIEW DRAFT

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## Foreword

This Kenya Standard has been developed by the Tubers and Tuber 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.

Arrowroots have become common foods in many households in Kenya due to its nutritional value. Currently, processed arrowroot crisps consumption is on the rise. However, many processors who are largely small scale lack appropriate standards for uniformity and conformity. In order to assure quality and consumer safety, it was necessary to develop a national standard for arrowroot crisps. This first edition of the standard thus intends to safeguard the interests of the stakeholders in the entire value chain, guarantee product quality and enhance safety of the consumers.

In the preparation of this standard, reference was made to:

KSEAS 745 Potato crisps - specification

Acknowledgement is hereby made for the assistance derived from these sources.



## Arrowroot ( Taro) crisps — Specification

### 1 Scope

This draft Kenya Standard specifies requirements and methods of sampling and test for crisps made from arrowroots (Taro) of edible variety *colocasia esculenta(L) Scott*

### 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*

EAS 748, *Fresh potatoes — Specification*

EAS 98, *Spices and condiments — Specification*

KS XXX *Fresh arrowroots- specification*

AOAC 2013.06, *Arsenic, Cadmium, Mercury and Lead in foods*

KS ISO 4833-1, *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 degrees C by the pour plate technique*

KS ISO 5498, *Agricultural food products — Determination crude fibre Content-General method*

KS ISO 5985, *Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid*

KS ISO 6579-1, *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp.*

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*

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*

KS 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*

ISO 874, *Fresh fruits and vegetables — Sampling*

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## **3 terms and definitions**

### **3.1 arrowroot crisps**

thin slices of peeled and washed arrowroots deep-fried or baked until crunchy

### **3.2 food grade material**

material which will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product

### **3.3 rancidity**

Unpleasant taste or odour in foods resulting from deterioration in the fat or oil portion of the food.

### **3.4 blisters**

Air/ fluid-filled and slightly sunken spots found on the surface of arrowroot.

## **4 Requirements**

### **4.1 Raw materials**

The following materials shall be used in the processing of arrowroot crisps:

- a) arrowroot conforming to relevant fresh arrowroot standard,
- b) edible oil or fat conforming to relevant East African Standards.

In addition, the following optional ingredients may be added:

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

### **4.2 General requirements**

- a) Plain arrowroot crisps shall be of a colour that is characteristic of the variety used. Where additives are used, the colour shall be characteristic of the ingredients.
- b) arrowroot crisps shall be free from off-flavour, rancidity and bitter taste
- c) The arrowroot crisps shall not show any blisters or noticeable separation between the outer and the inner portions or any other blemish.
- d) The arrowroot crisps shall be crunchy or crispy and free from sogginess and excessive oil
- e) Arrowroot crisps shall be free from foreign matter and any other adulterants

### **4.3 specific requirements**

4.3.1 The crisps shall be uniform in size and have a thickness of between 1.0 mm - 1.5 mm

4.3.2 Arrowroots crisps shall not contain more than 10 % by mass of small pieces, slivers and irregular pieces.

4.3.3 Packaged arrowroots crisps shall have not more than 1 % of the crisps with the following defects:

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



4.3.4 Arrowroot crisps shall conform to the specified compositional requirements in Table 1.

**Table 1 — Compositional requirements for arrowroot crisps**

SL No.	Parameter	Limit	Test method
i.	Moisture content, %, by mass, max.	5	ISO 712
ii.	Fat content on dry weight, %, max.	30	ISO 11085
iii.	Free fatty acids on dry weight basis, %, max.	0.5	EAS 321
iv.	Sodium chloride(NaCl) on dry weight basis, %, max	1.5	EAS 35
v.	Acid insoluble ash,%, by mass, max <sup>a</sup>	0.05	KS EAS 82
vi.	Peroxide value, mEq peroxide oxygen/kg oil, max.	10	ISO 3960
a) % mass on dry matter basis.			

## 5 Food additives

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

## 6 Hygiene

**6.1** Arrowroot crisps shall be prepared and handled in accordance with EAS 39.

**6.2** The product shall comply with microbiological limits given in Table 2 when tested in accordance with the test methods specified therein

**Table 2 — Microbiological limits for arrowroot crisps S/No.**

s/no	Micro-organism	Maximum limit	Test method
ii.	<i>Escherichia coli</i> per 1 g	Absent	ISO 16649-1
iii.	<i>Salmonella</i> per 25 g	Absent	ISO 6579
iv.	Yeast and moulds cfu/g	10 <sup>3</sup>	ISO 21527-2
v.	<i>Staphylococcus aureus</i> per 25 g	Absent	ISO 6888-1

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## 6 Contaminants

### 6.1 Heavy metals

Arrowroot crisps shall comply with limits for heavy metals established by the Codex Alimentarius Commission as given in Table 3 when tested in accordance with the test methods specified therein

**Table 3 — Heavy metals limits for Arrowroot crisps**

	Heavy metal	Limit mg/kg	Test method
i.	Arsenic (As)	0.1	AOAC 952.13
ii.	Lead (Pb)	0.2	ISO 6633
iii.	Cadmium (Cd)	0.1	ISO 6561-1/2

### 6.2 Other contaminants

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

## 8 Packaging

Arrowroot crisps shall be packaged in food grade material which will safeguard the hygienic, nutritional, and organoleptic qualities of the product.

The packaging materials shall comply with the environmental legislation of the destination country,

## 9 Weights and measures

Arrowroot crisps shall be packaged in accordance with the Weights and Measures requirements

## 10 Labelling

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

- a) name of the product 'Arrowroot crisps';
- b) name, and physical address of the manufacturer/ distributor and /or trade name/ brand name ;
- c) if spiced they shall be labelled 'Spiced Arrowroot Crisps';
- d) date of manufacture;
- e) list of ingredients
- f) lot identification

- g) best before date ;
- h) country of origin
- i) the net weight
- j) storage instruction
- k) declaration of flavouring agent or spice used
- l) instructions on disposal of used package.
- m) nutritional information

**10.2** When labelling non-retail packages, information shall either be given on the packages or in accompanying documents, except that the name of the product, lot identification and the name and address of the manufacturer or packer shall appear on the packages.

### **11 Methods of test**

The product covered by this standard shall be tested in accordance with the methods of test indicated in the relevant clauses of this standard.

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