

**KENYA STANDARD**

**DKS/2993:2023**

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**First Edition**

## **Raw Walnut Kernels— Specification**



**Kenya Bureau of  
Standards**

Standards for Quality life

**KENYA STANDARD**

**DKS 2993:2023**

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The following organizations were represented on the Technical Committee:

Agriculture and Food Authority - Nuts and Oil Crops Directorate

Government Chemist's Department

Jungle Nuts Ltd.

Kakuzi PLC

Kenya Agricultural and Livestock Organization

Kenya Industrial Research and Development Institute

Kenya Nut Company Limited

Kenyatta University

Kenya Plant Health Inspectorate Service (KEPHIS)

Ministry of Health

National Public Health Laboratories

Sagana Nuts Limited

SGS Kenya Limited

Syncom Food Consultancy Ltd.

Tensenses Africa EPZ Ltd.

Topnuts Enterprises Ltd.

Agventure Ltd

Healthy U 2000 limited

Kenya Bureau of Standards — Secretariat

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

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Public review draft

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## **Raw Walnut Kernels — Specification**

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## Foreword

This draft Kenya Standard was prepared by the Edible Nuts and Seeds Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards

Walnut (*Juglans regia* L.) is considered as a high-quality food with human health benefits because walnut kernels are rich in proteins, unsaturated fatty acids, phospholipids, vitamins, minerals, essential fatty acids, and other nutrients. Walnuts are most often eaten on their own as a snack but can also be added to salads, pastas, breakfast cereals, soups, baked goods, and other different food products.

This Kenya standard lays down specifications aiming at ensuring the safety and quality of walnut kernels produced or traded in and outside the country for human consumption.

During the preparation of this standard, reference was made to the following document:

UNECE STANDARD DPP-02 Walnut kernels published by the United Nations, New York, and Geneva, 2019.

Acknowledgement is hereby made for the assistance derived from this source

## Raw Walnut Kernels — Specification

### 1 Scope

This Draft Kenya Standard specifies requirements, methods of sampling and test for raw walnut kernels obtained from walnut tree (*Juglans regia* L intended for human consumption).

### 2 Normative references

CXS 193, General standard for contaminants and toxins in food and feed

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

KS EAS 803, Nutrition labelling — Requirements

KS EAS 804, Claims on foods — General requirements.

KS ISO 665, Oilseeds — Determination of moisture and volatile matter content

KS ISO 729, Oilseeds — Determination of acidity of oils

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 the food chain — Horizontal method for the enumeration of coagulase-positive *Staphylococci* (*Staphylococcus aureus* and other species) — Part 1: Method using Baird-Parker agar medium

KS ISO 16050, Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method

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 21294, Oilseeds — Manual or automatic discontinuous sampling

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1

##### Walnut

edible nuts obtained from varieties of the species *Juglans regia*

### 3.2

#### **Raw walnut kernels**

raw walnuts with their shells removed and which have not been subjected to roasting and/or various forms of chemical treatment

### 3.3

#### **damage/defects**

kernel, which is damaged mechanically, or by mould or insects or those showing internal discoloration of kernels materially affecting the quality'

### 3.4

#### **other defects**

walnut kernel that has skin discolouration, flesh discolouration and/or sprouted kernels

### 3.5

#### **whole**

walnut kernel which is not split or broken

### 3.6

#### **split**

separated 'half' of a walnut kernel

### 3.7

#### **broken**

more than one fourth of the walnut kernel is broken off

### 3.8

#### **foreign matter**

Any visible and/or apparent matter or material not usually associated with raw and roasted hazelnut kernels.

## **4 Requirements**

### **4.1 General requirements**

Raw walnut kernels shall be;

4.1.1, clean, matured, and dry.

4.1.2 free from rancidity, mould, foreign smell and/or undesirable taste and flavour

4.1.3 free from foreign matter including insects, insect fragments and mites

## 4.2 Specific requirements

4.2.1 Raw walnut kernels shall comply with specific requirements given in Table 1 when tested in accordance with the methods specified therein.

Table 1 — Specific requirements for raw walnut kernels

S/N	Characteristic	Requirement	Test Method
1.	Moisture content, %, m/m, max.	Raw Kernels 5.0	KS ISO 665
2.	Free fatty acids, %, m/m, max.	2	KS ISO 729

## 5 Contaminants

### 6.1 Aflatoxin

Aflatoxin levels in walnut kernels shall not exceed the limits given in Table 3 when tested in accordance with the test methods specified therein.

Table 3 — Aflatoxin limits for walnut kernels

S/No.	Aflatoxin	Maximum Limit	Test Method
i)	Total Aflatoxin µg/kg	10	KS ISO 16050
ii)	Aflatoxin B1 µg/kg	5	



## 6.2 Pesticide residues

Raw walnut kernels shall comply with those maximum residue limits established by the Codex Alimentarius Commission.

## 6.3 Other contaminants

Raw walnut kernels shall comply with those maximum limits for other contaminants established in CXS 193.

## 7 Hygiene

7.1 Raw Walnut kernels shall be produced, prepared, and handled in accordance with KS EAS 39.

7.2 Raw walnut kernels shall comply with the microbiological requirements given in Table 4 when tested in accordance with the test methods specified therein.

S/No.	Characteristic	Requirement	Test Method
i)	Escherichia coli, CFU/g A	Absent	KS ISO 16649-2
ii)	Salmonella spp. in 25 g	Absent	KS ISO 6579-1
iii)	Staphylococcus aureus, CFU/g	Absent	KS ISO 6888

## 8 Packaging

Raw walnut kernels shall be packaged in food grade packaging material that will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

## 9 Labelling

### 9.1 General

In addition to the requirements given in KS EAS 38, the product shall be legibly and indelibly labelled with the following information:

- a) name of the product as “Raw walnuts” and
- b) where grading is applied, it shall be in accordance to Annex A of this standard.

### **9.2 Nutrition labelling and health claims**

Nutrition labelling and health claims shall comply with the requirements given in KS EAS 803, KS EAS 804, and KS EAS 805.

### **10 Sampling**

Sampling shall be done in accordance with KS ISO 21294

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## Annex A

(Normative)

## Grading requirements for raw walnut kernels

	Tolerances allowed (per cent of defective raw walnut kernels by weight)		
Defects allowed	Extra	Class I	Class II
Tolerances for produce not satisfying the minimum requirements of which no more than:	4	6	8
Mouldy	0.5	1	2
Rancid or foreign smell or taste	1	1	2
Rotten or deterioration	0.5	1	2
Damaged by pests	1	1	2
Living pests	0	0	0
<b>(b) Tolerances for other defects</b>			
Foreign matter, shell fragments,	0.5	1	1
<b>(c) Tolerances for colour</b>			
Walnut kernels that do not belong to the same colour classification	15	15	15

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