KENYA STANDARD

Raw Walnut Kernels—Specification

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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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Raw Walnut Kernels — Specification
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:


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 discoloration, flesh discoloration 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

<table>
<thead>
<tr>
<th>S/N</th>
<th>Characteristic</th>
<th>Requirement</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Moisture content, %, m/m, max.</td>
<td>Raw Kernels</td>
<td>KS ISO 665</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Free fatty acids, %, m/m, max.</td>
<td>2</td>
<td>KS ISO 729</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Aflatoxin</th>
<th>Maximum Limit</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Total Aflatoxin µg/kg</td>
<td>10</td>
<td>KS ISO 16050</td>
</tr>
<tr>
<td>ii)</td>
<td>Aflatoxin B1 µg/kg</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
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.

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

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
Annex A
(Normative)
Grading requirements for raw walnut kernels

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