KENYA STANDARD

DKS 2992:2023

ICS ##.###

First Edition

Hazelnut Kernels— Specification

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TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Agriculture and Food Authority - Nuts and Oil Crops Directorate
Consumer Information Network
Government Chemist's Department
Jungle Nuts Ltd.
Kakuzi PLC
Kenya Agricultural and Livestock Research Organization (KALRO)
Kenya Industrial Research and Development Institute
Kenya Nut Company Limited
Kenya Plant Health Inspectorate Service (KEPHIS)
Ministry of Health
Sagana Nuts Limited
SGS Kenya Limited
Syncorn Food Consultancy Ltd.
Tensenses Africa EPZ Ltd.
Topnuts Enterprises Ltd.
Agventure Ltd
Healthy U 2000 limited
Kenya Bureau of Standards — Secretariat

REVISION OF KENYA STANDARDS

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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Foreword

This 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.

Hazelnuts are the edible nuts of the hazel tree (Corylus avellana) and are also known as filbert nuts. They are popular for their rich, nutty flavour and are used in a variety of culinary applications, including baking, cooking, and as a snack. This Kenya standard lays down specifications aiming at ensuring the safety and quality of hazelnut 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.
Hazelnut Kernels — Specification

1 Scope

This draft Kenya standard specifies the requirements, sampling and testing methods for raw and roasted hazelnut kernels derived from hazelnut fruit (Corylus avellana L. and Corylus maxima Mill and their hybrids intended for human consumption.

This standard applies to shelled raw and roasted hazelnut kernels.

2 Normative references

CXG 66, Guidelines for the use of flavourings
CXS 192, General standard for food additives
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 EAS 805, Use of nutrition and health claims — 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 Hazelnut

edible nuts obtained from varieties of the species Corylus avellana

3.2 shelled hazelnut kernels

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

3.3 roasted hazelnuts

hazelnuts with their shells removed which have been subjected to heat

3.4 damage/defects

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

3.6 other defects

hazelnut kernel that has skin discoloration, flesh discoloration and/or sprouted kernels

3.7 whole

hazelnut kernel which is not split or broken

3.8 split

separated 'half' of a hazelnut kernel

3.9 broken

more than one fourth of the hazelnut kernel is broken off
3.10

foreign matter

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

4 Requirements

4.1 General requirements

Raw and roasted hazelnut kernels shall be.

4.1.1 practically free of any visible foreign matter

4.1.2 clean, matured, and dry.

4.1.3 free from rancid and undesirable foreign odour and taste,

4.1.4 free from live or dead insects, rodent contamination, and insect fragments

4.2 Specific requirements

4.2.1 Raw and roasted hazelnut 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 and roasted hazelnuts

<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>6.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roasted kernels</td>
<td>5.0</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 Grading

Raw hazelnuts may be graded according to Annex A.

6. Food additives

Food additives when used in hazelnut kernels shall comply with CXS 192.

7 Flavouring agents

Flavouring agents when used in hazelnut kernels shall comply with CXG 66.

8 Contaminants

8.1 Aflatoxin

Aflatoxin levels in hazelnut kernels shall not exceed the limits given in Table 2 when tested in accordance with the test methods specified therein.

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

8.2 Pesticide residues

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

8.3 Other contaminants

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

9 Hygiene

9.1 Hazelnuts kernels shall be produced, prepared, and handled in accordance with KS EAS 39.
9.2 Hazelnut kernels shall comply with the microbiological requirements given in Table 3 when tested in accordance with the test methods specified therein.

Table 3, Microbiological requirements for almond kernels

<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>

9 Packaging

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

10 Labelling

10.1 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 hazelnuts” or “Roasted hazelnuts” and

b) where grading is applied, it shall be in accordance to Annex A of this standard.

10.2 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.

11 Sampling

Sampling shall be done in accordance with KS ISO 21294.
Annex A

(Normative)

Grading requirements for raw hazelnut kernels

<table>
<thead>
<tr>
<th>Defects 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>
</tr>
<tr>
<td>Not sufficiently developed including shrunken and shrivelled kernels</td>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Mouldy</td>
<td>0.5</td>
<td>1.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Rancid or damaged by pests, rotting, deterioration of which rancid not more than</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Damaged kernels and pieces not passing through a 5 mm round meshed sieve</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Pieces passing through a 5 mm round meshed sieve</td>
<td>3</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Living pests</td>
<td>0.5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Tolerances allowed percentage of defective hazelnut kernels, by number or weight (with regard to the total hazelnut kernel weight basis)
### (b) Size tolerances

<table>
<thead>
<tr>
<th>For produce not conforming to the size indicated, if sized</th>
<th>10</th>
<th>10</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>For round</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For pointed and oblong</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If sized with 1mm intervals</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For round</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For pointed and oblong</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (c) Tolerances for other defects

<table>
<thead>
<tr>
<th>Foreign matter, loose shells, shell fragments, fragments of hull, dust (by weight)</th>
<th>0.25</th>
<th>0.25</th>
<th>0.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twin kernels</td>
<td>2</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Hazelnut kernels belonging to varieties or commercial types other than that indicated</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>