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Almond Kernels — Specification

Kenya Bureau of Standards, Popo Road, Off Mombasa Road, P.O. Box 54974 - 00200, Nairobi, Kenya

+254 020 6948000, + 254 722202137, + 254 734600471
info@kebs.org
@KEBS_ke
kenya bureau of standards (kebs)
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.

This Kenya standard lays down specifications aiming at ensuring the safety and quality of almond kernels produced or traded in 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.
Almond Kernels — Specification

1 Scope

This Draft Kenya Standard specifies requirements, methods of sampling and test for shelled raw, roasted, blanched and fried almond kernels obtained from almond fruit (*Amygdalus communis* L.) intended for human consumption.

This standard does not apply to bitter almond kernels.

2 Normative references

The following referenced documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

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 38, Labelling of pre-packaged foods — General requirements.

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 raw almond kernel
raw almond with its shell removed and which has not been subjected to roasting and/or any form of treatment.

3.2 Roasted almond
almond with or without the seed coat which has been subjected to dry heat and to which salt (in form of powder or brine) and/or spices may have been added.

3.3 Fried almond
almond with or without the seed coat which has been processed in edible fat or oil and to which salt (in form of powder or brine) and/or spices may have been added.

3.5 Blanched almond
Almond with the seed coat which has been boiled to facilitate removal of the testa.

3.6 damaged/defective
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
almonds kernels that have skin discolouration, flesh discolouration and/or sprouted kernels.

3.7 whole
almond kernel which is not split or broken.
3.8
split
separated 'half' of an almond kernel

3.9
broken kernel
more than one fourth of the almond kernel is broken off

3.10
foreign matter
Any visible and/or apparent matter or material not usually associated with raw and roasted hazelnut kernels.

4. Requirements
4.1 Raw materials
Roasted, blanched and fried almonds shall be prepared from:

a) raw almonds complying with 4.3 and 4.4; and

b) other ingredients complying with the relevant standards.

4.2 General requirements
4.2.1 Raw almonds shall be mature and uniform in shape, size, and colour according to variety and grade.

4.2.2 Roasted, fried and blanched almonds shall:

a) be either whole, broken or split; and

b) peel easily where applicable

4.2.3 Raw, roasted blanched, and fried almonds shall be free from dead or living insects, insect fragments and mites.

4.3 Specific requirements
Raw, roasted, blanched and fried almonds shall comply with the specific requirements given in Table 1 when tested in accordance with the test methods specified therein.

Table 1 — Specific requirements for raw, roasted, and fried almonds
Table 1 — Specific requirements for raw, roasted, and fried almonds

<table>
<thead>
<tr>
<th>S/No</th>
<th>Characteristic</th>
<th>Requirements %</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Moisture content, m/m, max.</td>
<td>Raw almonds</td>
<td>6.0 KS ISO 665</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roasted, blanched and fried almonds</td>
<td>4.0</td>
</tr>
<tr>
<td>ii)</td>
<td>Free fatty acids, m/m, max.</td>
<td>2.0</td>
<td>KS ISO 729</td>
</tr>
</tbody>
</table>

4.4 Grading requirements

Grading of raw almond kernels shall be as given in annex A.

5 Food additives

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

6 Flavouring agents

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

7 Contaminants

7.1 Aflatoxin

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

Table 2 — Aflatoxin limits for almond 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>

7.2 Pesticide residues
Almond kernels shall comply with those maximum residue limits established by the Codex Alimentarius Commission.

7.3 Other contaminants

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

8 Hygiene

8.1 Almond kernels shall be produced, prepared and handled in accordance with KS EAS 39.

8.2 Roasted and fried almond 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

Almond 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 almonds” or “Roasted almonds” or “Fried almonds”; 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 almond kernels.

<table>
<thead>
<tr>
<th>Tolerances allowed.</th>
<th>Extra</th>
<th>Class I</th>
<th>Class II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(per cent of defective almond kernels by weight)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total tolerance for kernels not satisfying the minimum requirements,</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>of which no more than:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rancid, rotten, mouldy and damaged by insects or other pests a</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>of which mouldy: b</td>
<td>0,5</td>
<td>0,5</td>
<td>1</td>
</tr>
<tr>
<td>Gummy, brown spot, blemishes and discoloration</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Bitter almonds</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Shrunken or shrivelled and not sufficiently developed kernels</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Split, broken and halves</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Pieces</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Inshell almonds, shell or skin fragments, dust and foreign matter</td>
<td>0,15</td>
<td>0,25</td>
<td>0,25</td>
</tr>
<tr>
<td>b) Other defects (not included in the total tolerances):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Chipped and scratched.</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>- Doubles or twins b</td>
<td>5</td>
<td>15</td>
<td>20 c</td>
</tr>
</tbody>
</table>

Living pests are inadmissible in any class.
b When the marking indicates “without doubles” or “without twins”, these tolerances shall be reduced to 1 per cent, for Extra Class and 3 per cent for Class I and Class II.

c In Class II, when the marking indicates “with doubles” or “with twins”, no limit of doubles or twins is applied.

For Extra Class and Class I, there may be a maximum of 10 per cent, by weight, of kernels belonging to different varieties or commercial types, from the same local production area. For Class II, where the variety or commercial type are indicated in the marking, a maximum tolerance of 20 per cent is allowed.