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## **DRAFT EAST AFRICAN STANDARD**

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**Raw Macadamia nuts- inshell — Specification**

**EAST AFRICAN COMMUNITY**

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## Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 015, *Oil seeds, edible fats and oils*.

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## Raw Macadamia nuts- inshell — Specification

### 1 Scope

This Draft East African Standard specifies the requirements, sampling and test methods for raw macadamia nuts- inshell of varieties grown from *Macadamia integrifolia*, and *Macadamia tetraphylla*, and their hybrids whose kernels are intended for human consumption.

### 2 Normative references

The following 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.

CXC 6 Code of Hygienic Practice for Tree Nuts

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

ISO 658, Oilseeds — Determination of content of impurities

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

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

##### **macadamia nuts in-shell**

The seed of the plant *Macadamia integrifolia* and *tetraphylla* and their hybrids whose outer cover (husk) has been removed

#### 3.2

##### **macadamia nuts in-husk**

The seed of the plant *Macadamia integrifolia* and *tetraphylla* and their hybrids whose outer cover(husk) is intact.

#### 3.3

##### **shell**

the inedible woody part of the in-shell nut that protects the kernel

#### 3.4

##### **foreign matter**

organic and inorganic materials other than raw macadamia nuts in shell which may include insects, molds, insect fragments, mites, excrements and rodents.

### 3.5

#### broken nut in-shell

nut whose shell is split or seriously damaged to the extent that the kernel is visible to the naked eye. This excludes natural lines in the shell.

### 3.6

#### pest damaged nut in-shell

nut which show damage or owing attack by rodents, insects, mites or other pests or other causes that may be noticed without having to cut the nuts to examine them

### 3.7

#### disease damaged nut in-shell

Nuts which are affected by mould growth, rotting, or bacterial decomposition, or other causes that may be noticed without having to cut the nuts to examine them

### 3.8

#### husk

the outer hull of the macadamia nut, which covers the shell

### 3.9

#### total defectives

The percentage of damaged nuts such as the immature, broken, mouldy, and insect damaged nuts by weight present in the sample.

## 4 Requirements

### 4.1 General requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, the macadamia nuts in-shell shall:

- a) have the colour characteristic of the variety ranging brown, dark brown, slightly black in colour r
- b) be free from foreign matter
- c) be free from any undesirable flavours and off odours;

### 4.2 Specific requirements

Raw macadamia nuts in-shell shall comply with specific requirements given in Table 1 when tested in accordance with the methods specified therein.

**Table 1- Specific requirements for raw macadamia nuts in-shell**

S/N	Characteristic	Requirement	Test Methods
i)	Moisture and volatile matter content % (m/m) max	10	ISO 665
ii)	Total defectives % by mass, max.	20	ISO 658
iii)	Out of total defective, Mouldy nuts %, max.	5	ISO 658
iv)	Foreign matter, % by mass, max	2	ISO 658

## 5 Size classification

5.1 Sizing is optional. However, when sized, size is determined by the diameter of the shortest axis of the shell measured in (millimetres or inches).

Uniformity in size is expressed by:

5.2 A size range defined by a maximum size and a minimum size which must not exceed

- $\pm 5$  mm (1/5 inch) of difference or,
- Screening defined as a minimum size in diameter.

5.3 In case size designations are used or indicated, Table 2 shall apply:

**Table 2 Designation of size for inshell macadamia nuts**

Size designations	Diameter(mm)	Diameter (inches)
Extra-large*	> 28mm	> 1.1 inches
Large*	>23-28 mm	>0.9-1.1 inches
Medium*	>18-23 mm	>0.7-0.9 inches
Small*	16-18mm	0.6-0.7 inches
Undersize*	< 16mm	<0.6 inches

\*Tolerance allowed in all size designations is 10%

## 6 Hygiene

Raw macadamia nuts in-shell shall be produced, prepared, handled and stored in accordance with CXC 6.

## 7 Aflatoxin

Aflatoxin levels in raw macadamia nuts shall not exceed the limits given in Table 3 when tested in accordance with the test method specified therein

**Table 3 — Aflatoxin limits for raw macadamia nut inshell**

S/No.	Characteristic	Maximum limit $\mu\text{g}/\text{kg}$	Test method
i.	Total aflatoxin	10	ISO 16050
ii.	Aflatoxin B1	5	

## 8 Packaging

Raw macadamia nuts in-shell shall be packaged in appropriate materials that will safeguard the hygienic, nutritional and organoleptic properties of the product during storage and transportation.

## 9 Labelling

Each package shall have the following information in the accompanying documents,

- a) product name as “Raw macadamia nuts -in shell”;



## DEAS 1169:2023

- b) Size where applicable
- c) name, address and physical location of the producer or packer or distributor or importer or exporter or vendor
- d) lot/batch/code number where applicable
- e) net weight, in kilograms;
- f) crop year;
- h) country of origin'

### 10 Sampling

Sampling shall be done in accordance with ISO 21294

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