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Raw macadamia kernel — Specification

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National foreword

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(a) a member of International Organisation for Standardisation (ISO);

(b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and

(c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

This Uganda Standard, US EAS 1004:2019, *Raw macadamia kernel — Specification,* is identical with and has been reproduced from an International Standard, EAS 1004:2019, *Raw macadamia kernel — Specification,* and adopted as a Uganda Standard.

The committee responsible for this document is Technical Committee UNBS/TC 2, *Food and agriculture*, Subcommittee SC *2, Edible oilseeds, fats and oils.*

Wherever the words, “East African Standard " appear, they should be replaced by "Uganda Standard."

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ICS 67.200.10

FINAL DRAFT EAST AFRICAN STANDARD

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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.*

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

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Raw macadamia kernel — Specification

1 Scope

This draft East African Standard specifies requirements and methods of sampling and test for raw macadamia kernels of varieties grown from *Macadamia integrifolia, Macadamia tetraphylla, Macadamia ternifolia* and their hybrids, 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.

EAS 38, *Labelling of pre-packaged foods — Specification*

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

ISO 542, *Oilseeds — Sampling*

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

ISO 729, *Oilseeds — Determination of acidity of oils*

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*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
raw macadamia kernels
edible part of macadamia nuts (fruits), whose shells have been removed

3.2
whole kernel
kernel that is not split or separated into halves, and not more than ¼ of the kernel is chipped off or missing

3.3
half kernel/split
one half of a macadamia kernel with not more than 1/8 of its size chipped off or missing

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3.4
piece
unit of a kernel which is less than half a kernel

3.5
clean kernel
kernel which is practically free from dirt or other foreign material.

3.6
foreign matter
organic and inorganic materials other than macadamia kernel

3.7
defective/damaged kernels
kernels of any or all of the following:

a) kernels that have adhering foreign matter;

b) pest damaged kernels;

c) immature kernels;

d) disease damaged

3.7.1
adhering matter
foreign matter on the surface of the kernel

3.7.2
pest damaged kernels
kernels which show damage or owing attack by rodents, insects, mites or other pests

3.7.3
immature/shrunken/shriveled kernels
kernels which are underdeveloped with a slight to complete withering of the outer surface of the kernel and or are shriveled.

3.7.4
disease damaged

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

3.8
off-flavour
odour or flavour which is not characteristic of raw macadamia kernels and which appreciably affect the eating quality of the kernel

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4 Requirements

4.1 General requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, the raw macadamia kernel shall:

a) have colour characteristic of variety;

b) be free from off- flavour;

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c) be free from pests;

d) d) practically Free from foreign matter.

4.2 Specific quality requirements

Raw macadamia kernels shall comply with the requirements/limits stipulated in Table 1 when tested in accordance with the methods given therein.

Table 1 — Requirements limits for raw macadamia kernels

Characteristic	Limits	Test method
Moisture and volatile matter, % m/m, max.	2.0	ISO 665
Foreign matter, % m/m, max.	0.1	ISO 658
Free fatty acid, (as oleic acid) % m/m, max	1.0	ISO 729

4.3 Classification

4.3.1 Raw macadamia kernels may be classified into the following classes:

a) Class I; and

b) Class II.

4.3.2 When classified, the raw macadamia kernels shall comply with the requirements for class I and class II in Table 2.

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Table 2 — Specific requirements for each class

Defects allowed	Tolerances allowed (% of defective kernels, by number or weight)		Test method
	Class I	Class II	
a) Tolerances for general requirements			ISO 658
Shrunken/shrivelled	3	5	
Disease damaged	Nil	Nil	
Pest damaged kernels	1.5	2	
Living pests	0	0	
b) Size tolerances			
For produce not conforming to the size indicated, if sized	7	7	

5 Size classification

5.1 Sizing of raw macadamia kernels is optional. However, when sized, size is determined by the maximum diameter of the equatorial section of the whole nut or by widest diameter of the designated style size requirements.

5.2 In case style designations are used the provisions in Table 3 shall apply:

Table 3 — Designation of styles for raw macadamia kernels

Style	Size
Style 0 (Wholes)	Minimum 95 % whole kernel of a diameter of at least 18 mm, with the remaining 5 % consisting of pieces of which no more than 1% will pass through a 6.25mm (¼ inch) square opening.
Style I (Wholes)	Minimum 90 % whole kernel of a diameter of at least 16 mm, with the remaining 10 % consisting of pieces of which no more than 1% will pass through a 6.25mm (¼ inch) square opening.
Style II (Wholes and Halves)	Minimum 50 % whole kernel of a diameter of at least 14 mm, with the remaining 50 % consisting of pieces of which no more than 2% will pass through a 10mm square opening
Style III (Cocktail)	The whole kernel shall be at least 20 % of a diameter of at least 14 mm, included therein at least 80 % half kernel, with the remaining percentage consisting of pieces of which no more than 2% will pass through a 10mm square opening.
Style IV (Halves and Pieces)	Minimum 80 % half kernels of a diameter of at least 9 mm, with the remaining percentage consisting of pieces of which no more than 5% larger than the half kernels
Style V (Large Diced)	Shall consists of units which are smaller than half kernels but of such that no more than 5% will pass through a 7.0mm (inch) opening and not more than 2% will pass through a 2.34 mm (3/32 inch) square opening

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Style VI (Chips)	Shall consists of units which are smaller than half kernels but of such that no more than 5% will pass through a 5mm opening

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Style VII (Bits and Diced)	Shall consists of units which are smaller than half kernels but of such that no more than 5% will pass through a 3 mm opening
Style VIII (Fines)	Shall consists of units which are smaller than half kernels but of such will pass through a less than 3 mm opening

6 Contaminants

6.1 Pesticide residues

Raw macadamia kernels shall comply with those maximum residue limits for pesticide residues established by Codex Alimentarius Commission for this commodity.

6.2 Aflatoxins

Total Aflatoxin shall not exceed 10 µg/kg while aflatoxin B1 shall not exceed 5 µg/kg when tested in accordance with ISO 16050.

7 Hygiene

Raw macadamia kernels shall be produced, prepared, handled and stored in accordance with EAS 39.

Raw macadamia kernels shall comply with the microbiological limits given in Table 4 when tested in accordance with the method specified therein.

Table 4 — Microbiological Limits for raw macadamia kernels

S/N	Microorganism	Maximum limit	Test methods
1	Salmonella per 25 g	Shall be absent	ISO 6579-1
2	E. coli MPN/g	Shall be absent	ISO 7251

8 Packaging

Raw macadamia kernels shall be packaged in containers made from food grade packaging material and sealed in a manner that will safeguard the hygienic, nutritional and organoleptic properties of the product

9 Nutrition and health claims

Raw macadamia kernels may have claims on nutrition and health. Such claims when declared shall comply with EAS 803, EAS 804 and EAS 805.

10 Weights and measures

Raw macadamia kernels shall be packaged in accordance with the weights and measures regulations of the destination country.

NOTE EAC Partner States are signatory to the International Labour Organizations (ILO) for maximum package weight of 50 kg where human loading and offloading is involved.

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11 Labelling

10.1 In addition to the requirements of EAS 38, the following information shall be legibly and indelibly labelled:

a) name of the product;

b) class or style or both where applicable shall be legibly and indelibly declared:

12 Sampling

Sampling shall be done in accordance with ISO 542.

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