DUS 1704

DRAFT UGANDA STANDARD

First Edition
2017

Cashew kernels — Specification

Reference number
DUS1704: 2017

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The Executive Director
Uganda National Bureau of Standards
P.O. Box 6329
Kampala
Uganda
Tel: +256 414 333 250/1/2/3
Fax: +256 414 286 123
E-mail: info@unbs.go.ug
Web: www.unbs.go.ug

Contents

Page

Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to co-ordinate the elaboration of standards and is

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

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

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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.

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

Cashew kernels— Specification

1 Scope

This Northern corridor standard specifies requirements and methods of sampling and test for kernels obtained from cashew nuts (*Anacardium occidentale Linnaeus*).

2 Normative references

The following referenced documents 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, *Labeling of prepackaged foods — Specification*

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

US ISO 542, *Oilseeds -- Sampling*

US ISO 605, *Pulses -- Determination of impurities, size, foreign odours, insects, and species and variety -- Test methods*

US ISO 659, *Oilseeds -- Determination of oil content (Reference method)*

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

US ISO 729, *Oilseeds -- Determination of acidity of oils*

US ISO 12193,, *Animal and vegetable fats and oils -- Determination of lead by direct graphite furnace atomic absorption spectroscopy*

US ISO 16050, *Foodstuffs-Determination of aflatoxin B_1, and the total content of aflatoxins B_1, B_2, G_1 and G_2 in Cereals, nuts and derived products-High performance liquid chromatographic method*

US ISO 17239, *Fruits, vegetables and derived products -- Determination of arsenic content -- Method using hydride generation atomic absorption spectrometry*

US ISO 15774, *Animal and vegetable fats and oils — Determination of cadmium content by direct graphite furnace atomic absorption spectrometry*

3 Terms and definitions

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

3.1
cashew kernels
kernels obtained through shelling and peeling of cashew nuts (*Anacardium occidentale Linnaeus*) and have not been subjected to any heat treatment.

3.2
whole (W)1 kernel
A cashew kernel is classified as whole if it has the characteristic shape of a cashew kernel and not more than 1/8th of the kernel has been broken off. This grade may also be designated as W.

3.3
Splits (S)/half kernel
One half of a cashew kernel that has been split lengthwise, provided not more than 1/8 of this cotyledon has been broken off. This grade may also be designated as S.

3.4
pieces
kernels which have been broken into more than two pieces.

Note:
Pieces may be describes as small pieces, large pieces or baby bits

3.5
Butts (B)
kernels which have been broken crosswise and are less than 7/8 but not less than 3/8 of a whole kernel, and the cotyledons are still naturally attached. This grade may also be designated as B.

3.6
scorched kernels
kernels that are discoloured due to overheating during shelling or blanching.

3.7
dessert kernels
kernels that are scraped, shriveled, blemished or otherwise discolored

3.8
clean kernel
kernel which is practically free from dirt or other foreign material.

3.9
extraneous matter
organic materials other than the cashew kernels and other kernels; and inorganic materials

3.10
defective/damaged kernels
kernels of any or all of the following:

a) kernels that have extraneous matter adhering on;

b) pest damaged kernels;

c) immature kernels; excessively soft kernels;

d) disease damaged

e) weather-damaged kernels.

3.10.1
adhering matter
extraneous matter on the surface of the kernel causing permanent discoloration

3.10.2
pest damaged kernels
kernels which show damage owing to attack by rodents, insects, mites or other pests

3.10.3
immature/shriveled kernels
kernels which are underdeveloped with a slight to complete withering of the outer surface of the kernel and/ or are shriveled.

3.10.4
disease damaged
kernels affected by mould growth, rotting, or bacterial decomposition, or other causes that may be noticed without having to cut the grains to examine them

3.11
Off-flavour
odour or flavour which is not characteristic of cashew kernels and which appreciably affect the eating quality of the kernel

4 Requirements

4.1 General characteristics

Cashew kernels shall:

a) have colour characteristic to variety.

b) have the characteristic flavour.

c) have characteristic shape.

d) have uniform appearance free practically from scorching, blemishes, discoloration, black or brown spots, adhering testa, scrapes, flux marks, and speckles

4.2 Specific quality requirements

Cashew kernels shall conform to the quality requirements in Table 1.

Table 1- Quality requirements for cashew kernels

SN	Parameter	Limits	Methods of test
1	Moisture content, % m/m, max.	5	ISO 1026
2	Oil content on dry weight basis, % m/m, min	70	ISO 659
3	Free fatty acid, % m/m, calculated as oleic Acid, max.	0.5	ISO 729
4	Filth, % m/m, max.	0.1	ISO 605

4.3 Size designation and grading

Extra class cashew nuts whole shall be graded and designated in according with sizes in Table 2. |Other classes of cashew kernels shall be designated as in Tables 3-6. Sizing is optional for other classes.

Table 2: Grades for extra class cashew kernels

SL NO.	Grade designation	Number of kernels per kg	General characteristics
(i)	W180	265 to 395	Cashew kernels obtained though shelling and peeling cashewnuts (*Anacardium occidentale Linnaeus*) shall have the characteristic shape: shall be white, ivory or light ash in colour, reasonably dry and free from damaged kernels and black spots. They shall be completely free from rancid kernels. The kernels shall be completely free from testa.
(ii)	W210	440 to 465	
(iii)	W240	485 to 530	
(iv)	W280	575 to 620	
(v)	W320	660 to 706	
(vi)	W400	770 to 880	
(vii)	W450	880 to 990	
(viii)	W500	990 to 1100	

Tolerance — Broken kernels and kernels of the next lower grade, if any, shall not together exceed 5 per cent.

Table 3: Grades for *Scorched Cashew Kernels (Whole)* **cashew kernels**

SL NO.	GRADE DESIGNATION	TRADE NAME	GENERAL CHARACTERISTICS
(1)	(2)	(3)	(4)
(i)	SW	Scorched Whole	In addition to requirements under **2.1** cashew kernels shall be reasonably dry and free from damaged kernels, black spots and testa. They shall be completely free from rancid kernels.The kernels may be light brown, light ivory, light ash or deep ivory in colour due to scorching as a result of overheating.

***Tolerance* — Broken kernels and kernels of the next lower grade, if any, shall not together exceed 5 per cent.**

Table 4: Grades for *Desert Cashew Kernels (Whole)* **cashew kernels**

SL NO.	GRADE DESIGNATION	TRADE NAME	BLEMISH	GENERAL CHARACTERISTICS
(1)	(2)	(3)	(4)	(5)
(i)	SSW	Scorched whole or	Slightly shrivelled	In addition to requirements under

		Scorched Wholes IA	kernels	**2.4.2** the following shall apply. Slightly scorched kernels and kernels with slight speckling and discoloration are permitted. They shall be completely free from rancid kernels. The kernels may be light brown, light blue, or light ivory in colour due to scorching. The kernels may also be immature.
(ii)	DW	Desert Wholes		In addition to requirements under **2.4.2** the following shall apply. Cashew kernels shall be reasonably dry and free from insect damage and testa. Scorched, discoloured, speckled and shrivelled kernels are permitted. Rancid kernels may show deep black spot.
(iii)	LDK W	Lower Desert Kernels Wholes	Insect damage shrivelled and black spot	Kernel shall show the above symptoms but more severely and shall not qualify for DW.

Tolerance — Broken kernel or kernels of the next lower grade, if any, shall not together exceed 5 per cent.

Table 4: Grades for *Cashew Kernels (White Pieces)* **cashew kernels**

SL NO.	GRADE DESIGNATION	TRADE NAME	DESCRIPTION	GENERAL CHARACTERISTICS
(1)	(2)	(3)	(4)	(5)
(i)	B	Butts	Kernels broken cross-wise and naturally attached	In addition to requirements in **2.4.3** the following shall apply. *Cashew kernels shall be completely free from rancid kernels. The pieces shall be completely free from testa.*
(ii)	S	Splits	Kernels split naturally lengthwise	‘’

(iii)	LWP	Large White Pieces	Kernels broken into more than two pieces and not passing through a 4-mesh 16 SWG sieve	‘’
(iv)	SWP	Small White Pieces	Broken Kernels smaller than those described as WP but not passing through a 6-mesh 20 SWP sieve	‘’
(v)	BB	Baby Bits	Plumules and broken kernels smaller than those descried as SWP but not passing thorough a 10-mesh 24 SWG sieve	‘’

Tolerance — Up to 5 per cent of the next lower grade or pieces.

Table 5: Grades for *Cashew Kernels (Scorched Pieces)*

SL NO.	GRADE DESIGNATION	TRADE NAME	DESCRIPTION	GENERAL CHARACTERISTICS
(1)	(2)	(3)	(4)	(5)
(i)	SB	Scorched Butts	Kernels broken cross-wise and naturally attached	In addition to requirements in **2.4.4** the following shall apply. Cashew kernels shall be free from rancid kernels. The pieces may be light brown or deep ivory in colour due to scorching as a result of over-beating.
(ii)	SS	Scorched Splits	Kernels split naturally lengthwise	‘’

(iii)	SP	Scorched Pieces	Kernels broken into pieces and not passing through a 4-mesh 16 SWG sieve	‘’
(iv)	SSP	Scorched Small Pieces	Broken Kernels smaller than those described as SP but not passing through a 6-mesh 20 SWG sieve	
(v)	Powder	Kernel powder	Kernels broken to scorched powder during processing	Kernel powder shall have been obtained through deliberate breaking or as a process of peeling by hand and shall be white, light brown, or brown but free from any infestation.

Tolerance — Up to 5 per cent of the next lower grade or pieces.

Table 6: Grades for *Desert Cashew Kernels (Pieces)*

SL NO.	GRADE DESIGNATION	TRADE NAME	DESCRIPTION	BLEMISH	GENERAL CHARACTERISTICS
(1)	(2)	(3)	(4)	(5)	6
(i)	SPS	Scorched Pieces Second scorched pieces IA	Kernels broken into pieces but not passing through a 4-mesh 16 SWG sieve	Pieces of shrivelled kernels may be deformed due to immature nuts and black spots.	In addition to requirements in Clause **2.4.5** the following shall apply. Scorched pieces of cashew kernels with surface speckling and discolouration permitted. The kernels may be light brown, deep ivory or light to deep blue in colour. May be deformed due to immature nuts and may have spots. They shall be free from rancid kernels

(ii)	DP	Desert Pieces	Kernels broken into pieces but not passing through a 4-mesh 16 SWG sieve	More shrivelled than those described as SPS and deeply scorched.	In addition to requirements in **2.4.5** the following shall apply. The kernels may be deeply scorched, may have surface speckling and discolouration, may be brown, deep ivory or light to deep blue in colour, may be deformed and immature nuts and may have spots.
(iii))	DSP	Desert Small Pieces	Kernels of the same description as above but smaller than DP and not passing through a 6-mesh 20 SWG sieve	More shrivelled than those described as SPS and deeply scorched	The kernels may be deeply scorched, may have surface speckling and discolouration, may be brown, deep ivory of light to deep blue in colour, may be deformed and immature nuts and may have spots.
	DB	Desert Butts	Kernels broken cross-wise and naturally attached	More shrivelled than those described as SPS and deeply scorched	The kernels may be deeply scorched, may have surface speckling and discolouration, may be brown, deep ivory of light to deep blue in colour, may be deformed and immature nuts and may have spots.
(iv)	DS	Desert Splits	Kernels split naturally lengthwise	More shrivelled than those described as SPS and deeply scorched	The kernels may be deeply scorched, may have surface speckling and discolouration, may be brown, deep ivory of light to deep blue in colour, may be deformed and immature nuts and may have spots.

Tolerance — Up to 10 per cent of the next lower grade. Cashew kernels shall be packed in new, clean, dry and leak-proof tin containers and the containers shall be securely closed and sealed in such a manner that the cashew kernels remain in an inert atmospheric condition inside the container.

5 Food additives

Cashew kernels may be preserved by use of food additives in accordance with Codex stand 192.

6 Contaminants

6.1 Pesticide residue limits

Cashew kernels shall conform to those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity

6.2 Heavy metal contaminants

Cashew kernels shall conform to those maximum limits for heavy metals stated in Table 7

SN	Heavy metal	Limits, mg/kg, max.	Methods of test
1	Arsenic	0.1	ISO 11212-1
2	Cadmium	0.02	ISO 11212-4
3	Lead	0.1	ISO 12193

6.3 Aflatoxins

Cashew kernels shall conform to those maximum limits for aflatoxins stated in Table 8

SN	Aflatoxin type	Limits, µg/kg, max.	Methods of test
1	Aflatoxin B_1	5	ISO 16050
2	Total Aflatoxins	10	

7 Hygiene

Cashew kernels shall be handled in hygienic manner in accordance with EAS 39.

8 Packaging

Cashew kernels shall be packed in new, clean, dry and leak-proof containers, such containers shall be securely closed and sealed in such a manner that the cashew kernels remain in an inert atmospheric condition inside the container.

9 Weights and measures

The weight of the package of the product shall comply with Weights and Measures regulations of the importing Partner State.

10 Labelling

The following particulars shall be marked or labelled on each container in accordance EAS 38.

(i) Name of product.

(ii) Name and address of the packer/manufacturer.

(iii) Net mass.

(iv) Grade of product.

(v) Name of the country, where packed.

(vi) Any other marking required by the purchaser.

(vii) Lot number or code.

8 Weights and measures

The weight of the package of the product shall comply with Weights and Measures regulations of the importing Partner State.

9 Hygiene

Cashew kernels shall be handled in hygienic manner in accordance with EAS 39.

10 Sampling

Representative samples of the material for testing conformity to this specification shall be drawn according to ISO 542.

Bibliography

[1] KS 227-1, *Cashew kernels — Specification*

Certification marking

Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

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DUS 1704: 2017

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