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REPORT OF THE FIFTY-FIFTH SESSION

Addendum 5

Note by the secretariat

This document contains the revised UN/ECE recommendation for Cashew Kernels (DF-17) which was adopted at the fifty-fifth session of the Working Party as a new UN/ECE Standard.

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UN/ECE STANDARD DF-17
concerning the marketing and commercial
quality control of

CASHEW KERNELS
moving in international trade
between and to UN/ECE member countries

I. DEFINITION OF PRODUCE

This standard applies to cashew kernels obtained by heating, shelling and peeling the true fruits of the cashew tree (*Anacardium occidentale Linneaus*). It does not apply to cashew kernels for further processing.[1]

(a) Whole: whole kernels of characteristic shape. [2] The presence of a small hole at the proximal end of the kernel or a central split or crack is not considered a defect.

(b) Brokens: Kernels where one eighth or more of the original kernel is broken off. Designations of brokens as follows:

(i) Butts: Kernels of not less than 3/8th of a whole kernel which have been broken crosswise but the cotyledons are still naturally attached.

(ii) Splits: Kernels split lengthwise naturally.

(iii) Pieces: Kernels which have broken into more than two pieces.

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements of cashew kernels at the export control stage after preparation and packaging.

A. Minimum requirements

(i) In all classes subject to the special provisions for each class, and the tolerances allowed, the cashew kernels must be:

[1]Oil frying or roasting are not considered to be 'further processing' where cashew kernels are intended for direct consumption.

[2]Kernels with no more than one eighth of the kernel broken off can also be considered as whole.

- sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded,
- sufficiently developed,
- clean, practically free from any visible foreign matter,
- free from insects or mites whatever their stage of development,
- free from visible damage by insects, mites or other parasites,
- free from mould
- free of any rancidity
- free from adhering testa or shell liquid,
- free of foreign smell and/or taste.

The condition of the cashew kernels must be such as to enable them:

- to withstand transport and handling; and
- to arrive in satisfactory condition at the place of destination.

(ii) Moisture content

Cashew kernels shall have a moisture content of not greater than 5%.[3]

B. Classification

Cashew kernels are classified in three classes defined below.[4]

(i) **"Extra" class**

Cashew kernels in this class must be of superior quality. They must be characteristic of the variety and/or commercial type. Their colour should be white, pale ivory, pale ash-grey or light yellow and should be uniform.

They must be practically free from defects with the exception of very slight superficial defects provided that these do not affect the general appearance of the produce, the quality, the keeping quality or its presentation in the package.

(ii) **Class I**

Cashew kernels in this class must be of good quality. They must be characteristic of the variety and/or commercial type. Their colour may be of light brown, light ivory, yellow, light ash-grey or deep ivory as a result of overheating.

[3]The moisture content is determined by the method described in Annex I to this document.

[4]Optional designations for each class are described in Annex II to this document.

(iii) **Class II**

This class includes cashew kernels which do not qualify for inclusion in the higher classes, but which satisfy the minimum requirements specified above. Immature and speckled kernels are permitted provided they do not affect the characteristic shape of the kernel. Their colour may be light or deep brown, amber, light or deep blue. The kernels may be discoloured and black spotted.

III. PROVISIONS CONCERNING SIZING

Kernels are classified by style as follows:

(a) Whole: Sizing is compulsory in "extra class", but optional for "class I" and "class II". Designation of sizes of whole kernels are as follows:

Size Designation	**Number of kernels per Kg**
150	265-325
180	326-395
210	395-465
240	485-530
280	575-620
320	660-706
400	707-880
450	881-990
500	990-1100

(b) Brokens:

Designations of sizes of pieces are as follows:

Designation	**Characteristic**
Large pieces:	not passing through a sieve of aperture 4.75mm
Small pieces:[5]	passing through a sieve of aperture 4.75mm but not passing through a sieve of aperture 2.80mm.
Very Small Pieces: [6] [7]	passing through a sieve of aperture 2.80mm but not passing through a sieve of aperture 2.36mm.

[5]These pieces may also be designated "Medium Brazilian Pieces".

[6]These pieces may also be designated "Small Brazilian Pieces".

[7]This sizing is optional.

"Baby bits" or "granules": Plemules and fragments of kernels passing through a sieve of aperture 2.80mm but not passing through a sieve of aperture 1.70mm.

IV. PROVISIONS CONCERNING TOLERANCES

Tolerances in respect of quality and size shall be allowed in each package for produce not satisfying the requirements of the class indicated.

A. Quality tolerances

Permitted defects [a]	**Tolerances allowed per cent by weight of kernels**		
	Extra	**Class I**	**Class II**
Total tolerances	8	11	14
Superficial damage	1	2	5
Immature or shrivelled (deformed)	1	2	5
Coloured kernels of next lower grade (NLG)	5	7.5	- [a]
Speckled or spotted(black or brown)	0.5	0.5	- [b]
Presence of testa	1	1	5
Insect damage	0.5	0.5	1
Mouldy, rancid or rotten	0.0	0.5 [c]	1 [c]
Foreign matter	0.05	0.05	0.05

[a] *The definition of the defects are listed in Annex III to this document.*

[b] *No limit (see Classification for Class II).*

[c] *For brokens, rancidity is to be determined as free fatty acid and/or peroxide value. The maximum tolerated for free fatty acid is 1% (expressed as oleic acid) and for peroxide, the maximum tolerated is 5 meq/kg (milliequivalents of oxygen per kilogram), both on the basis of extracted oil.*

B. Mineral Impurities

Acid insoluble ash must not exceed 1g/kg

C. Size tolerances

For "whole" kernels that have been size graded, the quantity of kernels of next lower size grade (NLSG) shall not exceed 5% by weight for "extra class", and 7.5% by weight for "class I" and "class II" at the time of packing. For all "whole" kernels, whether or not size graded, the quantity of brokens or pieces for "extra class", "class I" and "class II" shall not exceed 5% by weight at the time of packing.

For "butts" and "splits" the quantity of pieces present for "extra class", "class I" and "class II" shall not exceed 5% by weight at the time of packing.

For "pieces" grades, the quantity of pieces of the next lower pieces size designation for "extra class" shall not exceed 5% by weight of "extra class", and for "class I", and "class II" by 7.5% by weight.

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package (or lot for each package presented in bulk) must be uniform and contain cashew kernels of the same origin, quality and size (if sized).

The visible part of the contents of the package (or lot for each package presented in bulk) must be representative of the entire contents. For "extra" class and "class I", the kernels must be of the same variety and/or commercial type.

B. Packaging

Cashew kernels must be packed in such a way as to protect the produce properly, usually in hermitically sealed containers, either as rigid metal cans or flexible packs with barrier properties, under an inert gas or vacuum. The use of materials, particularly paper or stamps bearing trade specifications is allowed provided the printing or the labelling has been done with non-toxic ink or glue. The use of lead solder is not permitted.

C. Presentation

Cashew kernels may be presented:

- in small packages for direct sale to the consumer;[8]
- bulk packages e.g. 11.34 kilogramme cans flexible packs etc.

[8]*The regulations of certain importing countries require compliance with a specific range of net weights for closed packages.*

VI. PROVISIONS CONCERNING MARKING

Each package or case (for small retail packs) must bear the following particulars in letters grouped on the same side, legibly and indelibly marked and visible from the outside:

A. Identification

Packer	)	Name and address or
and/or	)	officially issued or
Dispatcher	)	accepted code mark [9]

B. Nature of Produce

- "Cashew kernels", if the contents not visible from outside
- Name of the variety and/or commercial type

C. Origin of produce

Country of origin and, optionally, district where grown or national, regional or local place name

D. Commercial specification

- Class ("extra", class I or class II or alternative acceptable designations as described in Annex II)
- Style ("whole", "butts", "splits" or "pieces")
- Size designation (if sized)
- Crop year (optional)
- Net weight, or the number of package units, followed by the net weight in the case of packages containing such units.

E. Official control mark (optional)

Adopted 1999

[9] The national legislation of a number of European countries requires the explicit declaration of the name and address.

ANNEX I

DETERMINATION OF THE MOISTURE CONTENT OF CASHEWS

METHOD 1 - LABORATORY REFERENCE METHOD

1. Principle

Determination of the moisture content of dried fruits by loss of mass after drying at a temperature of 103°C (± 2°C) in a temperature-controlled oven at ambient pressure for 6 hours.

2. Apparatus

2.1 Ceramic mortar with appropriate pestle or food chopper.

2.2 Analytical balance assensitive to 1 mg.

2.3 Cylindrical, flat-bottomed glass or metal containers, 12cm in diameter and 5cm in depth, provided with well-fitting lids.

2.4 Electrically heated temperature-controlled oven with good natural ventilation, regulated so that the temperature is maintained at 103°C (± 2°C).

2.5 Desiccator containing an effective desiccant (e.g. calcium chloride) and provided with a metal plate which allows the containers to cool rapidly.

3. Preparation of the sample

Shell the sample if required and crush the kernels in the mortar, or chop them finely, to obtain fragments of 2-4mm across.

4. Test portion and determination

4.1 Dry the containers and their lids in the oven for at least 2 hours and transfer to the dessicator. Allow the containers and lids to cool to room temperature.

4.2 Carry out the determination on 4 test portions of approximately 50g each.

4.3 Weigh the empty container and lid to the nearest 0.001g (M_0).

4.4 Weigh approximately 50g of the test material into the container to the nearest 0.001g. Spread the material all over the base of the container, seal the container quickly with the lid and weigh the whole (M_1). Perform these operations as quickly as possible.

4.5 Place the open containers, with their lids beside them, in the oven. Close the oven and allow to dry for 6 hours. Open the oven, quickly cover the containers with their individual lids, and place them in the desiccator to cool. After cooling to ambient temperature, weigh the covered dish to the nearest 0.01g (M_2).

4.6 The moisture content of the sample, as percentage by mass is given by the expression:

$$Moisture\ content = \frac{M_1 - M_2}{M_1 - M_0} \times 100$$

4.7 Report the average value obtained from the four determinations.

METHOD II - RAPID METHOD

1. Principle

Determination of the moisture content using a measuring instrument based on the principle of electrical conductivity. The measuring instrument must be calibrated against the laboratory method.

2. Apparatus

2.1 Ceramic mortar with appropriate pestle or food chopper.

2.2 Measuring instrument based on the principle of electrical conductivity.

3. Determination

3.1 Fill the glass with the substance to be examined (previously ground in the mortar) and tighten the press until a constant pressure is obtained.

3.2 Read the values of the scale.

3.3 After each determination, clean the glass thoroughly with a spatula, stiff bristled brush paper napkin, or compressed air pump.

ANNEX II

DESIGNATIONS OF CLASSES

Designations for each class are shown in the table below.

Class	**Quality**	**Colour**	**Optional Designation**
Extra	Superior quality Characteristic of variety or commercial type	White Pale Ivory Pale ash-grey Light yellow	"White"
Class I	Good quality	Light Brown Light Ivory Light ash-grey Deep ivory Yellow	"Scorched"
Class II	Do not qualify for inclusion in higher classes, but which satisfy minimum requirements specified above.	Light Brown Amber Light Blue	"Scorched Seconds"
	Immature and speckled kernels are permitted provided they do not affect the characteristic shape of the kernel.	Deep Brown Deep Blue Discoloured Black spotted	"Dessert"

ANNEX III

DEFINITIONS OF DEFECTS

A. Defects of kernels

Superficial damage: Damage adversely affecting the appearance of the product, including blemishes and areas of discoloration. Scraped kernels, where characteristic shape is not affected are not considered defective.

Intrinsic defects: Shrivelled or immature kernels: the kernel is materially shrunken, wrinkled and tough. These are considered a defect only when the kernel is deformed and does not have its characteristic shape.

Spotted or speckled: the presence of black or brown spots or specks.

B. Other defects from external causes

Insect damage: Containing dead insects, mites, insect fragments, webbing, frass, excreta, or visible damage caused by boring and feeding of insects and animal parasites.

Mould: Mould filaments either on the inside or the outside of the kernel visible to the naked eye.

Rancidity: Oxidation or free fatty acid production in the lipids producing a disagreeable flavour.

Decay: Significant decomposition caused by the action of micro-organisms.

Foreign Matter: Any matter or material not usually associated with the product; excludes mineral impurities.

Testa: Skin adhering to any portion of the kernel.