SRI LANKA STANDARD 405:1976

UDC 634.573

SPECIFICATION FOR CASHEW KERNELS

BUREAU OF CEYLON STANDARDS

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SLS 405:1976

(Attached AMD 55, AMD 108 and AMD 114)

Gr. 8

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Sri Lanka.

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD
SPECIFICATION FOR CASHEW KERNELS

FOREWORD

This Sri Lanka Standard was authorised for adoption and publication by the Council of the Bureau of Ceylon Standards on 1976-12-01, after the draft, finalised by the Drafting Committee on Cashew had been approved by the Agricultural and Chemicals Divisional Committee.

Cashew kernels are obtained from cashew nuts by shelling and removing the testa. Kernels are then graded.

The international trade of cashew kernels is still conducted in Imperial units. The grade designations used at present by the trade for grading cashew kernels have therefore been specified in this standard. Special attention is drawn to the grade designations of cashew kernels (whole) where counts are expressed in terms of the number of kernels per kilogram. These designations will however be reviewed if considered necessary, particularly once metric units are adopted by the trade.

The standard values given in this specification are in SI units.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value observed or calculated shall be rounded off in accordance with CS 102. The number of figures to be retained in the rounded off value shall be the same as that of the specified value in this standard.

In the preparation of this standard, the assistance obtained from the publications of the International Organization for Standardization and the Indian Standards Institution is gratefully acknowledged.

1 SCOPE

This specification lays down requirements and methods of sampling and test for kernels obtained from cashew nuts, *Anacardium Occidentale Linnaeus*.

2 REFERENCES

CS 77 Black tea packed in containers

CS 102 Presentation of numerical values

CS 124 Test sieves

SLS 809 Recommended shipping marks for goods.

3 TYPES AND GRADES

3.1 Types

Cashew kernels shall be of the following types:

a) Cashew kernels (whole)

b) Scorched cashew kernels (whole)

c) Dessert cashew kernels (whole)

d) Cashew kernels (white pieces)

e) Cashew kernels (scorched pieces)

f) Dessert cashew kernels (pieces)

3.2 Grades

Each of the above types of kernels shall be subdivided into the grades as specified in Appendix A. The tolerance for each grade is specified in the footnotes to this appendix.

4 REQUIREMENTS

4.1 General characteristics

Cashew kernels shall be obtained from cashew nuts, *Anacardium occidentale Linnaeus* by shelling and removing the testa. The kernels should have the characteristic shape. They may be either scorched or unscorched and in the form of wholes or pieces. Cashew kernels should be free from moulds, living insects, insect fragments, dead insects, rodent contamination, any signs of rancidity and practically free from extraneous matter such as stones, dirt or any other foreign matter.

4.2 The moisture and volatile matter content of cashew kernels shall not exceed 5.5 per cent by mass when tested according to the method prescribed in 7.3.

4.3 Cashew kernels shall also comply with the specifications given in Appendix A.

5 PACKAGING AND MARKING

5.1 Packaging

Cashew kernels shall be packed as prescribed in Appendix B.

5.2 Marking

5.2.1 Each package shall be marked legibly and indelibly or a label shall be attached to the package, with the following information; except for packages intended for export where marking shall be in accordance with 5.2.2.

a) Name of the product;

b) Type/Grade;

c) Trade name, if any;

d) Batch or code number, if any;

e) Net weight in grams or in kilograms; and

f) Name and address of the producer or trader.

5.2.2 Marking on packages intended for export shall be in accordance with SLS 809. In addition to the Standard Shipping Marks stipulated in SLS 809, the following information marks shall be given on each package.

a) Name of the product; and

b) Grade designation.

6 SAMPLING

6.1 Definitions

6.1.1 **lot** : In any consignment all the packages containing material of the same grade and type shall constitute a lot.

6.1.2 **primary sample** : A small quantity of cashew kernels taken at a single position, from the contents of an emptied container.

6.1.3 **bulk sample** : The quantity of cashew kernels obtained by combining and mixing the primary samples drawn from any one particular lot.

6.1.4 **final lot sample** : A sample representing the quality of the lot, obtained by reduction of the bulk sample and intended for analysis or other examination.

6.2 General requirements of sampling

6.2.1 In drawing, and handling test samples, care shall be taken that the properties of the sample and the material being sampled are not affected. All selections shall be done at random by using a random number table as given in CS 77.

6.3 Primary samples

6.3.1 The number of packages to be drawn from a lot depends on the size of the lot and shall be in accordance with Table 1.

TABLE 1 - Number of packages to be drawn for sampling

No. of packages in the lot	No. of packages to be drawn
1 to 5	All
6 to 49	5
50 to 100	10% of the packages
over 100	The square root of the number of packages rounded to the nearest integer

6.3.2 From each of the packages selected as in **6.3.1**, one container shall be selected at random.

6.3.3 Each container selected shall be emptied. From different parts of contents so emptied, a sufficient number (not less than 3) of primary samples shall be drawn.

6.4 Bulk sample

All the primary samples drawn as described above shall be mixed thoroughly to form the bulk sample.

The size of the bulk sample shall be at least 2 kg.

6.5 Final lot samples

The bulk samples shall if necessary be reduced to give two final lot samples each containing at least 1 kg of cashew kernels; one of these samples is intended for testing and the other for reference.

6.6 Testing of samples

One of the two final lot samples thus obtained shall be tested for all the requirements given in this specification.

6.7 Criteria for conformity

The lot shall be considered as conforming to the requirements of this specification if the sample tested as in **7** satisfies all the requirements.

7 METHODS OF TEST

7.1 The counts shall be checked in respect of grades W 210 to W 450 (see Appendix A.1) by weighing a kilogramme of the material and counting the

kernels. Percentage of pieces and kernels of the next lower grade, if any, shall also be ascertained and recorded. In respect of grades B to DS (see Appendices A.4 to A.6) the material shall be sieved and the percentage of the material not conforming to the relevant grade shall be checked with the tolerance limit (see footnote of Appendix A.1).

7.2 The kernels shall be visually examined by naked eye (corrected if necessary), with such magnification as may be necessary in any particular case, for the detection of moulds, living insects, insect fragments, dead insects, rodent contamination and extraneous matter. In case the magnification exceeds x 10, this fact shall be stated in the test report.

Any signs of rancidity shall be tested organoleptically.

7.3 Determination of moisture and volatile matter

7.3.1 *Principle*

7.3.1.1 Determination of the moisture and volatile matter content of the pure kernels, by drying at a temperature close to 103 °C in a temperature controlled oven at atmospheric pressure until practically constant mass is reached.

7.3.2 *Apparatus*

7.3.2.1 *Analytical balance*

7.3.2.2 *Mechanical mill*, easy to clean, allowing the kernel to be ground without appreciable change in moisture and volatile matter content.

7.3.2.3 *Vessel*, of metal resistant to attack, with flat bottom, provided with a well fitting lid (for example : diameter of vessel 70 mm, height 30 mm to 40 mm).

7.3.2.4 *Temperature-controlled, electrically heated oven*, with good natural ventilation regulated so that the temperature of the air and of the shelves in the neighbourhood of the samples lies between 101 °C and 105 °C in normal operation.

7.3.2.5 *Desiccator*, containing an efficient desiccant such as phosphorus pentoxide, silica gel, etc. and provided with a metal plate which allows the vessel to cool rapidly.

7.3.3 *Procedure*

7.3.3.1 Preparation of sample

Grind the analysis sample in the mechanical mill (see **7.3.2.2**) which has previously been well cleaned, until the major dimension of the particles obtained is not greater than 2 mm. Reject the first particles (about 1/20 of the sample), collect the rest, mix carefully and carry out the determination without delay.

7.3.3.2 Test portion

a) Weigh the vessel (see **7.3.2.2**) with its cover after leaving it open for at least 30 minutes in the desiccator (see **7.3.2.5**) at laboratory temperature.

b) Weigh into the vessel 5 ± 0.5 g of the meal weighed to the nearest 0.001 g. (see 7.3.3.1).

Spread the material evenly over the whole base of the vessel and close the vessel by means of its cover. Weigh the whole.

c) Carry out these operations as quickly as possible to avoid any appreciable change in moisture content.

7.3.3.3 Determination

Put the vessel containing the test portion, with the cover removed, in the oven (see **7.3.2.4**) which has previously been set to operate at 103 ± 2 °C. Close the oven. After three hours, reckoned from the time when the temperature returns to 103 °C, open the oven, immediately close the vessel by means of its cover, and place the assembly in the desiccator. As soon as the vessel has cooled to laboratory temperature, weigh it.

Return the vessel, with cover removed, to the oven for one hour, take it out again after closing it, allow it to cool and weigh as before. Repeat the process of heating, cooling and weighing until the difference between two successive weighings does not exceed 0.005 g.

7.3.4 *Expression of results*

7.3.4.1 Method of calculation

Calculate the moisture and volatile matter content to two places of decimals, as a percentage by mass of the material as received, by means of the following formula:

$$\text{Moisture and volatile matter, per cent by mass} = \frac{m_1 - m_2}{m_1 - m_0} \times 100$$

where,

m_0 = mass, in grams, of the vessel,

m_1 = mass, in grams, of the vessel and test portion before drying, and

m_2 = mass, in grams, of the vessel and test portion after drying.

APPENDIX A

SPECIFICATION FOR CASHEW KERNELS

A.1 CASHEW KERNELS (WHOLE)

Sl. No. (1)	Grade designation (2)	Number of kernels per kg (3)	Characteristic (4)
i)	W 180	less than 395	Cashew kernels shall have the characteristic shape, be white, pale ivory or light ash in colour; be reasonably free from damaged kernels and black or brown spots. They shall be completely free from rancid kernels. The kernels shall be completely free from testa.
ii)	W 210	440 to 465	
iii)	W 240	485 to 530	
iv)	W 320	660 to 705	
v)	W 450	880 to 990	

Tolerance : Broken kernels and kernels of the next lower grade, if any, shall not together exceed 5 per cent by mass at the time of packing. Other lower grades shall not be present.

A.2 SCORCHED CASHEW KERNELS (WHOLE)

Sl. No. (1)	Grade designation (2)	Trade name (3)	Characteristics (4)
i)	SW	Scorched Wholes	Cashew kernels shall have the characteristic shape; shall be reasonably 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 over-heating.

Tolerance : Broken kernels, if any, shall not together exceed 5 per cent by mass at the time of packing.

A.3 DESSERT CASHEW KERNELS (WHOLE)

Sl. No. (1)	Grade designation (2)	Trade name (3)	Blemish (4)	Characteristics (5)
i)	SSW or SWIA	Scorched wholes second or scorched wholes IA	Slightly shrivelled kernels	Cashew kernels shall have the characteristic shape: shall be reasonably free from testa. Slightly scorched kernels and kernels with slight speckling and discolouration permitted. They shall be completely free from rancid kernels. The kernels may also be immature. The kernels may be light brown, or light ivory in colour due to scorching.
ii)	DW	Dessert wholes		Cashew kernels shall have the characteristic shape and shall be reasonably free from testa. Scorched, discoloured, speckled and shrivelled kernels permitted. Rancid kernels not permitted. The kernels may show deep black spots.

Tolerance : Broken kernels or kernels of the next lower grade, if any, shall not together exceed 5 per cent by mass at the time of packing.

A.4 CASHEW KERNELS (WHITE PIECES)

Sl. No. (1)	Grade designation (2)	Trade name (3)	Description (4)	Characteristics (5)
i)	B	Butts	Kernels broken crosswise and naturally attached.	Cashew kernels shall be white, pale ivory or light ash in colour; shall be reasonably free from damaged kernels and black spots. They shall be completely free from rancid kernels. The pieces shall be reasonably free from testa.
ii)	S	Splits	Kernels split naturally lengthwise	- do -
iii)	LWP	Large white pieces	Kernels broken into more than two pieces and not passing through a 4.75-mm sieve conforming to CS 124.	- do -
iv)	SWP	Small white pieces	Broken kernels smaller than those described as LWP but not passing through a 2.80-mm sieve conforming to CS 124.	Cashew kernels shall be white, pale ivory or light ash in colour: shall be reasonably free from damaged kernels and black spots. They shall be completely free from rancid kernels. The pieces shall be reasonably free from testa.
v)	BB	Baby bits	Plumules and borken kernels smaller than those described as SWP but not passing through a 1.70-mm sieve conforming to CS 124.	- do -

Tolerance : Up to 5 per cent by mass of the next lower grade or pieces at the time of packing.

A.5 CASHEW KERNELS (SCORCHED PIECES)

Sl. No. (1)	Grade designation (2)	Trade name (3)	Description (4)	Characteristics (5)
i)	SB	Scorched Butts	Kernels broken crosswise and naturally attached.	Cashew kernels shall be reasonably free from damaged kernels, black spots and testa. They 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-heating.
ii)	SS	Scorched splits	Kernels split naturally lengthwise.	- do -
iii)	SP	Scorched pieces	Kernels broken into pieces and not passing through a 4.75-mm sieve conforming to CS 124.	- do -
iv)	SSP	Scorched small pieces	Broken kernels smaller than those described as SP but not passing through a 2.80-mm sieve conforming to CS 124.	- do -

Tolerance : Up to 5 per cent by mass of the next lower grade or pieces at the time of packing.

A.6 DESSERT CASHEW KERNELS (PIECES)

Sl. No. (1)	Grade designation (2)	Trade name (3)	Description (4)	Blemish (5)	Characteristics (6)
i)	SPS	Scorched pieces seconds or scorched pieces IA.	Kernels broken into pieces but not passing through a 4.75-mm sieve conforming to CS 124.	Pieces of shrivelled kernels. May be deformed due to immature nuts and black spots.	Cashew kernels shall be reasonably free from testa. Scorched pieces with surface speckling and discolouration permitted. The kernels may be light brown or deep ivory in colour. May be deformed due to immature nuts and may have spots. They shall be free from rancid kernels.
ii)	DP	Dessert pieces	Kernels broken into pieces but not passing through a 4.75-mm sieve conforming to CS 124.	More shrivelled than those described as SPS and deeply scorched.	Cashew kernels shall be reasonably free from testa. The kernels may be deeply scorched. may have surface speckling and discolouration, may be brown or deep ivory in colour, may be deformed and shrivelled due to immature nuts and may have spots. They shall be free from rancid kernels.
iii)	DSP	Dessert small pieces	Kernels of the same description as, but smaller than DP and not passing through a 2.80-mm sieve conforming to CS 124.	-	- do -
iv)	DB	Dessert butts	Kernels broken crosswise and naturally attached.	-	- do -
v)	DS	Dessert splits	Kernels split naturally lengthwise.	-	- do -

Tolerance : Up to 10 per cent by mass of the next lower grade at the time of packing.

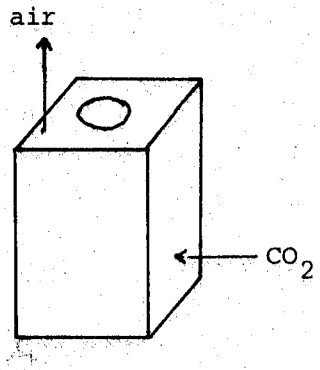
APPENDIX B

PACKAGING OF CASHEW KERNELS

B.1 Cashew kernels shall be packed in clean and dry, leak proof tin containers fabricated and tested as given in B.4.

B.2 Containers filled with cashew kernels shall be hermetically sealed after infusion of an inert gas. This could be done by vita pack process or as illustrated below:

The lid of the container shall be properly closed and sealed. Pierce at the top, and the bottom of a side of the container. The inert gas (carbon dioxide or nitrogen) shall be fed in through the hole at the bottom. Ensuring that sufficient amount of the gas has been fed in, the hole at the bottom shall be sealed immediately. The hole at the top shall then be sealed.



NOTE - In case of vita pack process it is recommended to leave the containers over-night after gassing and check the following day. Tins having the sides drawn in ("tight tins") indicate proper sealing and are acceptable for packing in cartons. The "loose tins" indicate leakages and shall be rectified.

B.3 Two hermetically sealed containers shall be packed in a carton.

B.4 FABRICATION AND TESTING OF THE CONTAINERS

B.4.1 The tin plate used for fabrication of the containers shall be prime quality tin plate having a minimum thickness of 0.25 mm. It shall be free from rust or any other damage or defect.

B.4.2 The grade designation of the tin coating shall be E 1 (EURONORM) or E 25 (ASTM) where nominal mass of coating per surface shall be 2.8 g/m^2.

B.4.3 The dimensions of the base of the container shall be 23.5 ± 0.2 cm x 23.5 ± 0.2 cm.

B.4.4 It is recommended that the containers be fabricated with double seams. The body seam (side seam) shall be electrically welded or lock seam and soldered. The seams shall be free of defects which could result in leaks.

B.4.5 The quality of the solder used for hand soldering shall be Sn 45 minimum and that for machine soldering shall be Sn 35 minimum.

B.4.6 All the containers shall be tested for leakages with a pressure of 0.8 bar (8 x 10^4 pascal) and immersing in water for a minimum period of 15 seconds. The containers shall be dried thoroughly after testing to ensure no moisture is left on the surfaces.

AMENDMENT NO. 1 APPROVED ON 1982-08-12

SLS 405 : 1977 SPECIFICATION FOR CASHEW KERNELS

Appendix A - A.1 Cashew kernels (Whole)

Delete the existing columns (2) and (3) in the table under A.1 and substitute the following.

Sl. No. (1)	Grade designation (2)	Number of kernels per kg (3)
i	W 180	375 to 395
ii	W 210	440 to 465
iii	W 240	485 to 530
iv	W 280	575 to 620
v	W 320	660 to 705
vi	W 400	770 to 880
vii	W 450	880 to 990
viii	W 500	990 to 1100

AMENDMENT NO. 2 APPROVED ON 1988-08-25

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Clause 2 - REFERENCES

Include the following:

SLS 809 Recommended shipping marks for goods

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Clause 5.2 - Marking

Substitute the existing clause with the following:

5.2 Marking

5.2.1 Each package shall be marked legibly and indelibly or a label shall be attached to the package, with the following information; except for packages intended for export where marking shall be in accordance with **5.2.2**.

a) Name of the product;

b) Type/Grade;

c) Trade name, if any;

d) Batch or code number, if any;

e) Net weight in grams or in kilograms; and

f) Name and address of the producer or trader.

5.2.2 Marking on packages intended for export shall be in accordance with **SLS 809**. In addition to the standard shipping marks stipulated in **SLS 809**, the following information marks shall be given on each package.

a) Name of the product; and

b) Grade designation.

Amendment No. 3 approved on 1988-12-12

to SLS 405 : 1976

SPECIFICATION FOR CASHEW KERNELS.

(This amendment supersedes the Amendment No. 1)

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Appendix A

A.1 Cashew kernels (whole)

Substitute the existing table with the following :

Sl. No. (1)	Grade designation (2)	Number of kernels per Kg (3)	Characteristic (4)
(i)	W 180	less than 395	Cashew kernels shall have the characteristic shape, shall be white, pale ivory or light ash in colour; shall be reasonably free from damaged kernels and black or brown spots. They shall be completely free from rancid kernels. The kernels shall be completely free from testa.
(ii)	W 210	440 to 465	
(iii)	W 240	485 to 530	
(iv)	W 320	660 to 705	
(v)	W 450	880 to 990	

Tolerance : Broken kernels and kernels of the next lower grade, if any, shall not together exceed 5 per cent by mass at the time of packing. Other lower grades shall not be present.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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SRI LANKA STANDARDS INSTITUTION

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The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

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All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

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