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Draft Sri Lanka Standard
SPECIFICATION FOR DESICCATED COCONUT
(THIRD REVISION) (DSLS 98 :)

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(තුන්වන ප්‍රතිශෝධනය) (ශ්‍රී. ලං. ප්‍ර. 98 :)

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இவ்வரைவு இலங்கைக் கட்டளையெனக் கருதப்படவோ அன்றிப் பிரயோகிக்கப்படவோ கூடாது
This draft should not be regarded or used as a Sri Lanka Standard.

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Comments to be sent to: SRI LANKA STANDARDS INSTITUTION, 17, VICTORIA PLACE,
ELVITIGALA MAWATHA, COLOMBO 08.

හැඳින්වීම

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Introduction

This Draft Sri Lanka Standard has been prepared by the Sri Lanka Standards Institution and is now being circulated for technical comments to all interested parties.

All comments received will be considered by the SLSI and the draft if necessary, before submission to the Council of the Institution through the relevant Divisional Committee for final approval.

The Institution would appreciate any views on this draft which should be sent before the specified date. It would also be helpful if those who find the draft generally acceptable could kindly notify us accordingly.

All Communications should be addressed to:

The Director General
Sri Lanka Standards Institution,
17, Victoria Place,
Elvitigala Mawatha,
Colombo 08.

Draft Sri Lanka Standard
SPECIFICATION FOR DESICCATED COCONUT
(Third Revision)

DSLS 98 :

DRAFT FOR PUBLIC COMMENTS

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Sri Lanka.

Draft Sri Lanka Standard
SPECIFICATION FOR DESICCATED COCONUT
(Third Revision)

FOREWORD

This Sri Lanka Standard was approved by the Sectoral Committee on Food Products and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on

Sri Lanka is the pioneer exporter of desiccated coconut which accounts around 40 per cent of the world production. Desiccated coconut is a ready-to-use food product which finds a variety of uses in the bakery, confectionary, as well as in several other food preparations.

This Standard was first published in 1970 and revised in 1988 and 2013. In this third revision, types were included covering value added products.

This Standard is subject to the regulations framed under the Food Act No. 26 of 1980 and the Coconut Development Act No. 46 of 1971 and regulations framed thereunder

For the purpose of deciding whether a particular requirement of this Standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with **SLS 102**. The number of significant figures retained in the rounded off value should be the same as that of the specified value.

In revising this Standard, valuable assistance derived from the following publication is gratefully acknowledged.

CODEX STAN 177: 1991 Codex standard for desiccated coconut

1 SCOPE

This Standard prescribes the requirements and methods of sampling and testing for desiccated coconut.

2 REFERENCES

- SLS 80 Food grade iodized salt (powdered) form
- SLS 102 Rules for rounding off numerical values
- SLS 124 Test sieves
- SLS 143 General principles of food hygiene
- SLS 428 Random sampling methods
- SLS 467 Code of practice for labelling of prepackaged foods

- SLS 516 Methods of test for Microbiology of food and animal feeding stuffs
 Part 1 Horizontal method for the enumeration of microorganisms – Colony count technique at 30 °C
 Section 2 Colony count at 30 °C by the surface plating technique
 Part 2 Horizontal method for the enumeration of yeasts and moulds
 Section 2 Colony count technique in products with water activity less than or equal to 0.95
 Part 3 Horizontal method for the detection and enumeration of coliforms
 Section 1 Most probable number technique.
 Part 4 General guidance for the detection and enumeration of faecal *Streptococci*
 Part 5 Horizontal method for the detection of *Salmonella* spp
 Part 12 Horizontal method for the detection and enumeration of presumptive *Escherichia coli* (Most probable number technique)
- SLS 699 Low density polyethylene films
- SLS 962 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
- SLS 1067 Multiwall paper sacks for packaging of desiccated coconut
- SLS 1590 Code of hygienic practice for coconut kernel processing products
- Official Methods of Analysis of the Association of official Analytical Chemists (AOAC), 20th Edition 2016

3 DEFINITIONS

For the purpose of this Standard, the following definitions shall apply:

- 3.1 coconut :** The fruit of the coconut palm (*Cocos nucifera* L.)
- 3.2 desiccated coconut:** The product prepared from substantially sound white kernel obtained from the fruit of coconut (*Cocos nucifera* L.) having reached appropriate maturity for processing and processed in an appropriate manner, undergoing operations such as de-husking, hatching, paring, washing, comminuting, drying and sifting
- 3.3 extraneous matter:** All matter other than desiccated coconut and parings associated with the product
- 3.4 kernel:** Endosperm of the coconut fruit consisting of white meat with its outer brown skin (testa)
- 3.5 paring:** The removal of the outer brown skin (testa) of the kernel
- 3.6 parings:** The outer brown skin (testa) removed in the process of paring
- 3.7 whole kernel (brown) desiccated coconut:** Product obtained from the fresh, mature kernel of the coconut with parings

3.8 special cuts/ fancy cuts: Different cut forms of desiccated coconut (broken chips, threads, flakes, slices etc.)

4 TYPES

- 4.1** High fat desiccated coconut
- 4.2** Low fat desiccated coconut
- 4.3** De-fatted desiccated coconut

NOTE

These products may or may not be salted, sweetend, flavoured, or roasted.

5 GRADES

5.1 The product shall be classified for the purpose of commercialization according to the granulometry as follows:

- 5.1.1** *Superfine desiccated coconut*
- 5.1.2** *Fine desiccated coconut*
- 5.1.3** *Medium desiccated coconut*
- 5.1.4** *Coarse desiccated coconut*
- 5.1.5** *Other sized desiccated coconut* - covers all other presentations including “fancy cuts” or special cuts (e.g. tender or thin flakes, long and thin chips, long and thick chips, extra fancy shreds, long shreds, standard shreds, etc.).

6 INGREDIENTS

6.1 Basic ingredient

Coconut, as defined in **3.1**

6.2 Optional ingredients

- 6.2.1** *Sugar, conforming to SLS 191*
- 6.2.2** *Salt, conforming to SLS 80*
- 6.2.3** *permitted food colouring and flavouring substances*

7 REQUIREMENTS

7.1 Hygiene

The product shall be processed, packaged, stored and distributed under hygienic conditions as prescribed in **SLS 143** and **SLS 1590**.

7.2 Appearance

7.2.1 The product shall be free from charred coconut pieces and oil separation, when visually examined.

7.2.2 The colour of desiccated coconut shall be natural white and for all grades, shall not greater than 0.2 red, 0.7 yellow and 0.1 blue on the Lovibond Tintometer scale, when determined by the method described in Appendix **B (B.2.1)** or 0.2 red, 0.9 yellow and 0.1 blue on the Lovibond Tintometer scale, when determined by the method described in Appendix **B (B.2.2)**.

NOTE

Not applicable for whole kernel, roasted and colouring substances added desiccated coconut

7.3 Flavour

The flavour shall be characteristic of the product. It shall be free from foreign flavours.

NOTE

Flavor need to be characteristic to the combination of desiccated coconut and added flavouring substances that has been added for flavoring purpose.

7.4 Odour

The odour shall be characteristic of the product. It shall not be mouldy, cheesy, soapy, smoky, fermented, rancid and shall not possess any undesirable odour.

7.5 Extraneous matter

The product shall be free from extraneous matter.

7.6 Parings

The brown specks of parings in desiccated coconut shall not exceed 10 particles per 100 g drawn at random, under visual examination.

The determination is carried out by spreading 100 g of the sample in a thin layer against a white background and counting with the naked eye.

7.7 Particle size

The particle size of standard granular grades of desiccated coconut shall conform to the requirements given in Table 1, when tested in accordance with the method given in Appendix **C**.

TABLE 1 – Size grading of desiccated coconut

Sl No	Grade	Requirement (per cent by mass)	Nominal aperture size of test sieve (mm)
(1)	(2)	(3)	(4)
i)	Super fine	100 per cent passes through	1.00
ii)	Fine	100 per cent passes through not more than 15 per cent remains on	1.70 1.40
iii)	Medium	100 per cent passes through not more than 15 per cent remains on not more than 15 per cent passes through not more than 2.5 per cent passes through	2.80 2.00 1.40 1.00
iv)	Coarse	100 per cent passes through not more than 15 per cent remains on not more than 15 per cent passes through not more than 2.5 per cent passes through	4.75 3.35 2.00 1.40

7.8 Chemical requirements

7.8.1 The product shall conform to the requirements given in Table 2, when tested in accordance with the methods prescribed in Column 4 of the table.

TABLE 2 - Chemical requirements of desiccated coconut

Sl No.	Characteristic	Requirement	Method of test
(1)	(2)	(3)	(4)
i)	Moisture, per cent by mass, max. a) standard granular grades b) special/ fancy cuts	3.0 3.5	} Appendix D
ii)	Oil content, per cent by mass a) high fat b) low fat c) de-fatted	More than 68 35 to 67 Less than 35	
iii)	Total acidity of the extracted oil, as lauric acid, per cent by mass, max.	0.3	SLS 313: Part 2/ Section 6
iv)	Total ash, per cent by mass, max.	2.5	AOAC 950.49

7.9 Microbiological limits

The product shall conform to the limits given in Table 3, when tested in accordance with the methods prescribed in Column 7 of the table.

TABLE 3 - Microbiological limits

SI No.	Test organism	n	c	Limit		Method of test
				m	M	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Aerobic plate count, per g	5	2	5×10^3	1×10^4	SLS 516: Part 1: Section 2
ii)	Yeast and mould count, per g	5	2	50	1×10^2	SLS 516: Part 2: Section 2
iii)	Coliforms, MPN per g	5	2	00	10	SLS 516: Part 3: Section 1
iv)	<i>E.coli</i> , MPN per g	5	0	00	-	SLS 516: Part 12
v)	<i>Salmonella</i> , per 25 g	5	0	00	-	SLS 516: Part 5
vi)	Faecal <i>Streptococci</i> , per g	5	0	50	-	SLS 516: Part 4

where,

n is the number of sample units to be tested;

c is the maximum allowable number of sample units yielding values between m and M ;

m is the limit under which a count is acceptable for any sample unit; and

M is the limit above which a count is unacceptable for any sample unit.

8 CONTAMINANTS

8.1 Potentially toxic elements

The product shall not exceed the limits given in Table 4, when tested in accordance with the methods prescribed in Column 4 of the table.

TABLE 4-Limits for heavy metals

SI No	Potentially toxic element	Limit	Method of test
(1)	(2)	(3)	(4)
i)	Arsenic, as As, mg/ kg, max.	0.1	AOAC 986.15 or 2013.06
ii)	Lead, as Pb, mg/ kg, max.	0.1	AOAC 999.11 or 2013.06
iii)	Cadmium, as Cd, mg/ kg, max.	0.1	AOAC 999.11 or 2013.06

8.2 Aflatoxin

The product shall not exceed the level 2 $\mu\text{g/ kg}$ for Aflatoxin B₁ and 4 $\mu\text{g/ kg}$ for total Aflatoxin when determined according to the **SLS 962** or **AOAC 968.22**.

9 PACKAGING

9.1 Desiccated coconut shall be packaged at the point of manufacture in food grade multiwall paper sacks conforming to **SLS 1067** or in corrugated cartons.

9.2 The liner used shall be of food grade, low density polyethylene (LDPE) conforming to **SLS 699** having a thickness of at least 88 µm for bulk packaging (25 kg and above) or other single layered laminated material of equivalent barrier properties.

9.3 The packaging material of food grade quality shall be such as to protect against bacteriological and other contamination. It shall protect the product against any infiltration of moisture, rehydration and leaking. The packaging material shall not impart any odour, taste or colour or any other extraneous property to the product and shall not result in contamination of the product.

10 MARKING AND/OR LABELLING

10.1 Each package shall be marked and/ or labelled legibly and indelibly with the following information, except for packages intended for export where marking shall be in accordance with **10.2**:

- a) Name of the product including type as “Desiccated coconut”, “high fat Desiccated coconut”, “defatted Desiccated coconut” or “low fat Desiccated coconut”;
- b) Cut or grade of the product;
- c) Brand name or trade mark, if any;
- d) Net mass in “g” or “kg”;
- e) The batch or code number or a decipherable code marking;
- f) Name and address of the manufacturer;
- g) Name and address of the packer or distributor in Sri Lanka;
- h) Date of manufacture;
- j) Date of expiry;
- k) Instructions for storage, if any; and
- l) Any other requirements issued by the Coconut Development Authority.

10.2 In addition to the Coconut Development Authority regulations on labelling, the following information shall be marked and/or labelled on packages intended for export:

- a) Name of the product including type as “Desiccated coconut”, “high fat Desiccated coconut”, “defatted Desiccated coconut” or “low fat Desiccated coconut”;
- b) Cut or Grade of the product;
- c) Name and address of the exporter;
- d) Net mass;
- e) Gross mass;
- f) Month and Year of manufacture, if required by the exporter ;
- g) Batch or code number or a decipherable code marking;

- h) The words “ Product of SRI LANKA”;
- j) Any other requirements given under the Coconut Development Act; and
- k) Any other information requested by the buyer/importing country.

11 SAMPLING

Representative samples of the product for ascertaining conformity to the requirements of this standard shall be drawn as prescribed in Appendix A.

12 METHODS OF TEST

Tests shall be carried out as prescribed in Appendices B to D of this standard, **Section 2/ Part 1, Section 3/ Part 3, Part 4, Part 5 and Part 12 of SLS 516, SLS 962** and Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC).

11 CRITERIA FOR CONFORMITY

A lot shall be declared as conforming to the requirements of this standard if the following conditions are satisfied:

11.1 Each package inspected as in **A.5.1** satisfies the packaging and marking and/or labelling requirements.

11.2 Each sample examined as in **A.5.2** satisfies the microbiological limits as given in **7.9**.

11.3 Each sample examined as in **A.5.3** satisfies the requirements of the grades as given in **7.7**.

11.4 The test results of the sample tested as in **A.5.4** satisfy the requirements given in **7.2, 7.3, 7.4, 7.5, 7.6, 7.8 and 8**.

APPENDIX A SAMPLING

A.1 LOT

In any consignment, all the packages containing desiccated coconut belonging to one batch of manufacture or supply shall constitute a lot.

A.2 GENERAL REQUIREMENTS OF SAMPLING

In drawing, preparing, storing and handling samples the following precautions and directions shall be observed.

A.2.1 Samples shall be drawn in a protected place not exposed to damp air, dust or soot.

A.2.2 The sampling instrument shall be clean and dry when used. When drawing samples for microbiological examination, the sampling instruments shall be sterilized.

A.2.3 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

A.2.4 Samples shall be kept in suitable clean and dry containers. The sample containers shall be of such size that they are almost completely filled by the sample.

A.2.5 The sample containers shall be sealed air-tight after filling and marked with necessary details of sampling.

A.2.6 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

A.3 SCALE OF SAMPLING

A.3.1 The samples shall be tested from each lot for ascertaining its conformity to the requirements of this standard.

A.3.2 The packages shall be selected to represent each grade available for inspection.

A.3.3 The number of packages to be selected from a lot shall be in accordance with Table 5.

TABLE 5 – Scale of sampling

No. of packages in the lot (1)	No. of packages to be selected (2)
Up to 50	5
51 to 150	7
151 to 300	8
301 to 500	10
501 to 1000	15
1001 and above	20

A.3.4 The packages shall be selected at random. In order to ensure randomness of selection, random number tables as given in **SLS 428** shall be used.

A.3.5 The sampling scheme given in this Appendix shall be applied where compliance of a lot to the requirements of this standard is to be assessed based on statistical sampling and inspection. Where compliance with this standard is to be assured based on manufacturer's control systems coupled with Type Testing and check tests or any other procedure, appropriate scheme of sampling and inspection should be adopted.

A.4 PREPARATION OF TEST SAMPLES

A.4.1 Sufficient quantity of material, not less than 25 g, shall be drawn from five packages selected as in **A.3.3**, using appropriate sterile sampling instruments under aseptic conditions. Material thus obtained from each group shall be mixed separately and transferred to separate sample containers, sealed air-tight and marked for microbiological examination.

A.4.2 One package shall be selected to represent each grade available for inspection, from the packages selected as in **A.3.3**. Each package so selected shall be emptied and a sufficient quantity of material shall be drawn from the top, middle and bottom portions of the package. The material obtained from each package shall be transferred to separate sample containers sealed air-tight and marked with the declared grades.

A.4.3 A sufficient quantity of material shall be drawn from each package selected as in **A.3.3**, mixed separately for each grade and transferred to separate sample containers, sealed air-tight and identified for other tests.

A.5 NUMBER OF TESTS

A.5.1 Each package selected as in **A.3.3** shall be inspected for packaging and marking and / or requirements.

A.5.2 Samples prepared as in **A.4.1** shall be tested individually for microbiological limits as given in **7.9**.

A.5.3 Samples prepared as in **A.4.2** shall be examined for the requirements of the grades as given in **7.7**.

A.5.4 The sample prepared as in **A.4.3** shall be tested for the requirements given in **7.2, 7.3, 7.4, 7.5, 7.6, 7.8** and **8**.

APPENDIX B DETERMINATION OF COLOUR

B.1 APPARATUS

Lovibond Tintometer, consisting of a moulded plastic case with a viewing tube and fitted with moveable racks of Lovibond glasses and a cabinet to illuminate the viewing fields. Light from a standardized light source (a 60-watt Osram pearl, single coil lamp of 230 volts A.C.) in the moulded plastic case passes via two separate paths to the viewing tube. In one light path is placed the sample and in the other, racks containing a selection of Lovibond colour slides.

B.2 PROCEDURE

B.2.1 The instrument is installed in an upright position. Above 4 g of the sample is placed in the white porcelain tray provided and is held by a magnet and a spring behind the sample aperture in the back plate of the white-light cabinet. A freshly prepared magnesium carbonate block is similarly placed on the outside of the other aperture. Having placed the sample in position so that it can be seen by reflected light in the left hand field of the viewing tube, the colour slides are shifted to the right, adjusting the red, yellow and blue in correct proportion until a perfect colour match is obtained. The values of the slides effective in the instrument is recorded.

B.2.2 The instrument is installed in the normal position. The sample is transferred into the sample holder provided with a glass window, and is well packed to avoid air bubbles between the sample and the glass window. The sample holder is then placed in the sample aperture, fastened by the screws. The *Halon* Standard is similarly placed in the other aperture of the Tintometer. Having placed the sample and the standard in position so that it can be seen by the reflected light on the left hand field of the viewing tube, the colour slides are shifted to the right adjusting the red, yellow and blue, in correct proportion until a perfect colour match is obtained. The values of the slides effective in the instrument are recorded.

APPENDIX C DETERMINATION OF PARTICLE SIZE

C.1 APPARATUS

C.1.1 *Standard test sieves*, conforming to **SLS 124**, of the size designation of 4.75 mm, 3.35 mm, 2.80 mm, 2.00 mm, 1.70 mm, 1.40 mm and 1.00 mm.

C.1.2 *Mechanical shaker*

C.1.3 *Weighing balance*, with 0.1 g accuracy

C.2 PROCEDURE

C.2.1 Make a nest of sieves as appropriate, provided with a cover and a receiver. Aperture size of the test sieves shall be selected according to Column 3 of Table 1.

C.2.2 Weigh, to the nearest 0.1 g, about 100 g of material into the upper sieve. Fit the upper sieve with the cover, place the sieve/nest of sieves in a mechanical shaker and sieve continuously for 5 minutes.

C.2.5 Transfer the residue on sieve/sieves separately to dishes using a brush. Weigh each dish.

C.3 CALCULATION

C.3.1

$$\text{Material retained on lower sieve, per cent by mass} = \frac{m_1}{m} \times 100$$

C.3.2

$$\text{Material retained on upper sieve, per cent by mass} = \frac{m_2}{m} \times 100$$

where,

m_1 is the mass, in g, of the material on lower sieve ;

m_2 is the mass, in g, of the material retained on upper sieve ; and

m is the mass, in g, of the material taken for test.

APPENDIX D DETERMINATION OF MOISTURE CONTENT

D.1 APPARATUS

D.1.1 *Tared flat-bottomed dish*, of about 65-mm diameter, provided with close fitting but easily removable lid

D.1.2 *Drying oven*, well ventilated and maintained at 103 ± 2 °C

D.1.3 *Desiccator*

D.1.4 Weighing balance, with 1 mg accuracy**D.2 PROCEDURE**

Weigh, to the nearest milligram, about 10 g of the sample. Place the uncovered dish with its lid, in the oven and dry at 103 ± 2 °C for two hours. Cover the dish while still in the oven, transfer to the desiccator and weigh soon after reaching room temperature. Heat again at 103 ± 2 °C in the oven for 30 minutes. Cool the dish in the desiccator and weigh. Repeat this process of drying, cooling and weighing until the difference between two successive weighings does not exceed 1 mg.

D.3 CALCULATION

$$\text{Moisture content, per cent by mass} = \frac{(m_1 - m_2)}{m_1 - M} \times 100$$

where,

m_1 is the mass, in g, of the dish with the sample before drying;

m_2 is the mass, in g, of the dish with the sample after drying; and

M is the mass, in g, of the empty dish.
