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SPECIFICATION FOR
ARECANUTS (BETEL NUTS)

BUREAU OF CEYLON STANDARDS

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SLS 468 : 1979

Gr. 4

BUREAU OF CEYLON STANDARDS
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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 ARECANUTS (BETEL NUTS)

FOREWORD

This Sri Lanka Standard Specification has been prepared by the Drafting Committee of the Bureau on Arecanuts. It was approved by the Agricultural and Chemicals Divisional Committee of the Bureau of Ceylon Standards and was authorised for adoption and publication by the Council on 1979-12-21.

This specification requires reference to the following Sri Lanka Standards:

CS 102 Presentation of numerical values.

CS 124 Test sieves.

SLS 428 Random sampling methods.

Arecanuts, commonly known also as betel nuts, are the seeds of the ripe fruit of *Areca Catechu Linn.* The nuts vary greatly in size and shape.

On account of the poor techniques adopted at present in Sri Lanka for drying, storage etc. of arecanuts, a grade, namely Grade 2, has been included in the specification. This grade will however be withdrawn from the specification once improved techniques are adopted for minimising the moisture content in the nuts.

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

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

The prevailing trade practices have been taken into consideration in the preparation of this specification.

1 SCOPE

This specification prescribes the requirements for arecanuts, *Areca catechu Linn*.

2 DEFINITIONS

For the purpose of this specification the following definitions shall apply:

2.1 **arecanut**: The mature and dried kernel of the ripe fruit of the Areca palm, *Areca Catechu Linn*.

2.2 **insect damaged nut**: The arecanut, any part or parts of which contain insects or have been attacked by insects which have caused damage visible to the naked eye.

2.3 **mouldy nut**: Arecanut where mould is visible, inside or outside, to the naked eye.

2.4 **extraneous matter**: Matter other than arecanuts, whole or borken.

3 GRADES

Arecanuts shall be of the following grades:

Grade 1
Grade 2
Grade 3 (Weevilled nuts).

4 REQUIREMENTS

4.1 General characteristics

4.1.1 The nuts of Grade 1 shall be whole, well cured and practically free from mould and insect damage.

4.1.2 The nuts of Grade 2 shall be whole, well cured, mouldy and practically free from insect damage.

4.1.3 The nuts of Grade 3 (weevilled nuts) shall be predominently mouldy and insect damaged.

4.2 Other requirements for Grades 1 and 2

4.2.1 *Size*

Arecanuts shall be grouped into the following sizes. The method of test is specified in 8.1.

4.2.1.1 *Large*

Arecanuts shall consist of nuts which when sieved using a 22.4-mm sieve conforming to CS 124 not less than 85 per cent by count of nuts should be retained on this sieve.

4.2.1.2 *Medium*

Arecanuts shall consist of nuts which when sieved using a 22.4-mm sieve and a 19.0-mm sieve, both sieves conforming to CS 124 not less than 85 per cent by count of nuts should be retained on the 19.0-mm sieve.

4.2.1.3 *Small*

Arecanuts shall consist of nuts which when sieved using a 16.0-mm sieve conforming to CS 124 not more than 15 per cent by count of nuts should be retained on this sieve.

4.2.1.4 Arecanuts graded as unspecified shall consist of all or any sizes of nuts in any proportion.

4.2.2 Arecanuts shall also comply with the specifications given in Table 1.

4.3 Other requirements for Grade 3 (Weevilled nuts)

4.3.1 *Appearance*

The proportion of insect infested and mouldy nuts shall not be less than 75 per cent by count when examined in accordance with the method specified in 8.2.1 and if necessary, with that specified in 8.3.

4.4 Extraneous matter

The proportion of extraneous matter for all grades of arecanuts shall not exceed 0.5 per cent by mass when determined in accordance with the method specified in 8.4.

5 PACKAGING FOR EXPORT

The packaging material shall be of a sound, merchantable quality as agreed to between the buyer and the seller.

6 MARKING FOR EXPORT

The bags shall be marked with the following information:

a) Name of the material.
b) Name, address and/or registered trade mark if any, of the seller.
c) Grade designation.

TABLE 1 Specifications for arecanuts

Sl No. (1)	Characteristic (2)	Specifications for		Method of test (Reference to Clause) (5)
		Grade 1 (3)	Grade 2 (4)	
1	External defects: a) Insect infested & mouldy nuts, per cent by count, max.	2	10	8.2.1
	b) Nuts having adherent segments of husk, bruises and other disfigurations, per cent by count, max.	5	5	8.2.2
2	Internal defects: Mouldy nuts, per cent by count, max.	15	60	8.3
3	Moisture content, per cent by mass, max.	12	12	8.5

d) Size - large, medium, small or unspecified (for Grades 1 and 2) as appropriate.
e) Net mass, in kg.
f) The words "Produce of Sri Lanka".
g) Shipping marks identifying the consignment (if any).

7 SAMPLING

7.1 Definitions

7.1.1 lot: In any consignment all the bags containing arecanuts of the same grade shall constitute a lot.

7.1.2 primary sample: A small quantity of arecanuts taken from each selected bag in the lot.

7.1.3 bulk sample: The quantity of arecanuts obtained by combining and mixing the primary samples drawn from any one particular lot.

7.1.4 final lot sample: A sample representative of the quality of the lot obtained by reduction of the bulk sample and intended for analysis or other examination.

7.2 General requirements of sampling

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 made at random and for this purpose a random number table as specified in SLS 428 shall be used.

7.3 Method of sampling

7.3.1 *Primary samples*

These shall be drawn in a representative manner from each of the bags taken at random in accordance with the scale given in Table 2.

TABLE 2 Scale of sampling

Number of bags in the lot (1)	Number of bags to be drawn (2)
Up to 100	10
101 to 400	12
401 to 800	16
801 to 1200	18
1201 and above	20

7.3.2 *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 8 kg.

7.3.3 *Final lot sample*

Reduce the bulk sample by successive coning and quartering to form two or more equal parts according to the number of final lot samples required. Each part thus obtained, which shall contain at least 2.5 kg of nuts, constitutes a final lot sample. One of these samples is intended for testing and the other for reference. The reference sample bearing the seals of the seller (or his representative) and of the sampling authority is to be used in case of dispute. It shall be kept at the sampling authority.

7.4 Packaging and labelling of final lot sample

All the samples shall be kept in suitable containers so as to preserve as far as possible all the characteristics of the material till the time of their use in testing. The containers shall carry labels with full particulars

for identification. If any infestation is found at the time of sampling a record of this shall be included in the details of sampling to be given on the sampling containers.

7.5 Testing of sample

One of the final lot samples drawn as described in 7.3.3 shall be tested for all the relevant requirements of this specification.

8 METHODS OF TEST

8.1 Determination of size

8.1.1 Take a sample of 100 arecanuts and sieve using the sieves specified in 4.2.1. For medium sized nuts, sieve first using a 22.4 mm sieve and thereafter a 19.0 mm sieve, both sieves conforming to CS 124.

8.1.2 Count the number of nuts retained on each sieve. For medium sized nuts, count the number of nuts retained on the 19.0 mm sieve alone.

8.1.3 Report as a percentage, the number of nuts retained on each sieve.

8.2 Determination of external defects (external appearance)

8.2.1 *Insect infested and mouldy nuts*

Take three samples of arecanuts, each consisting of at least 100 arecanuts. Examine the surface of each nut in a sample for evidence of insect infestation and mould. When a nut is defective in both these respects, only one defect shall be counted.

8.2.1.1 Repeat the examination on the remaining samples.

8.2.1.2 Report the average of the results of the three observations.

8.2.2 *Adherent segments of husk, bruises and other disfigurations*

Re-examine the nuts selected for the above examination individually for evidence of adherent segments of husk, bruises and other disfigurations. Nuts which are insect infested and/or mouldy in addition to the said defects shall not (for the purpose of this examination) be counted as defects. Nuts having adherent segments of husks, bruises and other disfigurations in less than 5 per cent of the surface shall not be counted as defective. When a nut is defective in more than one of these respects, only one defect shall be counted.

8.2.2.1 Repeat the examination on the remaining samples.

8.2.2.2 Report the average of the results of the three observations.

8.3 **Determination of internal defects(internal appearance)**

Take a sample of 100 arecanuts and cut these nuts lengthwise into two sections, the cut passing exactly through the centre of the kernel so as to expose the maximum surface of the central core. Examine both sections of each nut for the presence of mould.

8.3.1 Repeat as a percentage the number of mouldy nuts.

8.4 **Determination of extraneous matter**

8.4.1 *Procedure*

Thoroughly mix the material and weigh to the nearest 0.1 g, about one kilogramme of the sample. Separate the extraneous matter from the test portion and transfer it to a dry, tared watch glass and weigh.

8.4.2 *Calculation*

Extraneous matter, per cent by mass $= \frac{m_2}{m_1} \times 100$

where,

m_1 = mass, in g, of the sample and

m_2 = mass, in g, of the extraneous matter.

8.5 Determination of moisture

8.5.1 *Apparatus*

The Dean and Stark apparatus.

8.5.2 *Procedure*

Weigh to the nearest 0.1 g, about 50 g of arecanuts. Introduce the sample into a round bottom flask. Place about 200 ml of toluene in the flask. Connect the apparatus and fill the receiving tube with toluene poured through the top of the condenser. Heat the flask gently at first and when the toluene begins to boil, distil at the rate of two drops per second until most of the water has passed over. Increase the rate of distillation thereafter to about four drops per second. Reflux for about 5 hours. Allow to cool and ensure that any droplets of water adhering to the sides of the receiving tube are removed. When the water and toluene have separated completely, read the volume of the entrained water in millilitres.

8.5.3 *Calculation*

Moisture in sample, per cent by mass $= \frac{v}{m} \times 100$

where

v = volume, in ml, of the entrained water in the receiving tube, and

m = mass, in g, of the sample.

9 CRITERIA FOR CONFORMITY

A lot shall be declared to be in conformity with this specification if the final lot sample representing the lot satisfies the relevant requirements of this specification.

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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.*

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