SRI LANKA STANDARD 896: 2020

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SPECIFICATION FOR SPLIT LENTILS (*First Revision*)

SRI LANKA STANDARDS INSTITUTION

Sri Lanka Standard
SPECIFICATION FOR SPLIT LENTILS
(*First Revision*)

SLS 896: 2020

(Incorporating Corrigendum No. 1 and 2)

Gr. 5

SRI LANKA STANDARDS INSTITUTION
17, Victoria Place,
Elvitigala Mawatha,
Colombo 8,
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 SPLIT LENTILS
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FOREWORD

This Standard was approved by the Sectoral Committee on Agriculture and was authorized for adoption and publication as a Sri Lanka Standard by the Director General as vice chairperson of council on 2020-12-21 in the absence of chairman. This was ratified by the Council of Sri Lanka Standards Institution on 2021-01-13.

This Standard was first published in 1990. In this first revision, the title and scope has been expanded to accommodate all types of split lentils available in the market. The definitions have been revised and the products have been categorized under two different types. Physical requirements have been revised to ensure proper quality control of split lentil. Methods of tests were updated and the limits for microbiology and contaminants have been introduced to safeguard the consumers.

This Standard is subjected to the restrictions imposed under the Sri Lanka Food Act No. 26 of 1980, the Imports and Exports (Control) Act No. 01 of 1969, the Plant Protection Act No. 35 of 1999, the Consumer Affairs Authority Act No. 9 of 2003 and the regulations framed thereunder, and any other regulatory and statutory requirements wherever applicable.

All Standard values given in this Standard 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, expressing the result of a test or an analysis shall be rounded off in accordance with **SLS 102**. The number of significant figures 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 valuable assistance derived from the publications of the Codex Alimentarius Commission, Grain Trade Australia (GTA) and Canadian Grain Commission is gratefully acknowledged.

1. SCOPE

This Standard specifies the requirements and methods of sampling and tests for split lentils (*Lens culinaris* Medikus or *Lens esculenta* Moench) intended for human consumption.

2. REFERENCES

SLS 83	SI units and recommendations for use of their multiples and of certain other units
SLS 102	Rules for rounding off numerical values
SLS 143	Code of practice for general principles of food hygiene
SLS 467	Code of practice for labeling of prepackaged foods

SLS 516 Methods of test for microbiology of food and animal feeding stuffs
Part 2/ Section 2: Horizontal method for the enumeration of yeasts and moulds-Colony count technique in products with water activity less than or equal to 0.95
SLS 528 Sampling of food grains
SLS 910 Maximum residue limits for pesticides in food
SLS 962 Method for determination of aflatoxin in foods
Part 1 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 1527 Methods of test for determination of impurities, size, foreign odours, insects, and species and variety of pulses
SLS 1549 Method of test for cereal, pulse and derived products
Part 1: Determination of moisture content – Air oven method
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 animal filth: Any dead insects, insect fragments, insect webbing, rodent hair, excreta and other impurities of animal origin.

3.2 broken split lentil: Pieces of seed which are less than one half of the split lentil.

3.3 damaged split lentil: Seeds which are distinctly identified as having been visibly discoloured or damaged by pest, moisture, weather, frost, heat, disease or any other causes.

3.4 foreign matter: Anything that is not a split lentil or part of a split lentil comprising of

a) "inorganic matter" consisting metallic pieces, glass, dust, sand, gravel, stones, soil, clay and mud.
b) "organic matter" consisting of empty or pieces of seed pods, detached seed coats, parts of stems, leaves, straws, weed propagules, seeds of other species and animal filth.

3.5 immature split lentil: Seeds which are not fully developed and characterized by wrinkled, misshapen and discolour appearance.

3.6 objectionable foreign odour: Odours which are entirely foreign to lentils and because of their presence render the product unfit for human consumption.

3.7 pest infestation: Presence of insects or other organisms or their eggs and/or their larval stages.

3.8 seed coat: Outer surface of seed that envelopes the cotyledon (kernel).

3.9 **split lentil:** Product obtained by decorticating and splitting seeds of the lentil plant (*Lens culinaris* Medikus or *Lens esculenta* Moench).

3.10 **unhusked:** Seeds from which the seed coat has not been removed.

4 TYPES

Split lentils shall be of following types:

4.1 Type 1 – Red

4.2 Type 2 – Other than red

5 GRADES

Split lentils shall be of following three grades:

5.1 Grade 1

5.2 Grade 2

5.3 Grade 3

6 REQUIREMENTS

All types and grades of split lentil given in Clause **4** and **5** shall conform to the following requirements:

6.1 General requirements

6.1.1 Split lentils shall be handled, stored, processed, packaged and transported under hygienic conditions, in accordance with the hygienic conditions as prescribed in **SLS 143**.

6.1.2 Split lentils shall be clean, uniform in appearance, safe and suitable for human consumption.

6.1.3 Split lentils shall be free from objectionable foreign odour, varietal admixture and pest infestation when examined in accordance with the method prescribed in **SLS 1527**.

6.2 Physical requirements

Split lentils shall conform to the requirements given in Table **1**, when tested according to the methods given in Column **6** of the Table **1**.

TABLE 1 - Physical requirements for split lentils

SI No (1)	**Characteristic** (2)	**Requirement**			**Method of test** (6)
		Grade 1 (3)	**Grade 2** (4)	**Grade 3** (5)	
i	Moisture, per cent by mass, max.	12.0	12.0	12.0	**SLS 1549: Part 1**
ii	Total foreign material per cent by mass, max.	0.5	1.0	1.0	**SLS 1527**
iii	Unhusked, per cent by mass, max.	1.0	2.0	2.0	**Appendix B**
iv	Broken and immature, per cent by mass, max.	1.0	3.0	5.0	**Appendix B**
v	Damaged, per cent by mass, max.	1.0	2.0	2.0	**Appendix B**
vi	Added colouring substances	Not allowed	Not allowed	Not allowed	**AOAC 988.13 & HPLC**

6.3 Microbiological requirements

Split lentils shall not exceed the microbiological limit given in Table **2** when tested according to the method prescribed in Column **4** of the Table **2**.

TABLE 2 - Microbiological limits for split lentils

SI No (1)	**Test organism** (2)	**Limit** (3)	**Method of test** (4)
i	Yeast and mould count, per g, max.	1×10^4	**SLS 516: Part 2/ Section 2**

6.4 Requirement for limits of contaminants

6.4.1 *Potentially toxic elements*

Split lentils shall not exceed the limits for potentially toxic elements given in Table **3**, when tested as in accordance with the method given in Column **4** of the Table **3**.

TABLE 3 - Limits for potentially toxic elements for split lentils

SI No (1)	Elements (2)	Limit, mg/kg (maximum) (3)	Method of test (4)
i)	Lead, as Pb	0.20	**AOAC 2013.06**
ii)	Cadmium, as Cd	0.10	

6.4.2 *Pesticide residues*

Split lentils shall not contain pesticide residues in excess of the limits as prescribed in **SLS 910**.

6.4.3 *Mycotoxin*

Split lentils shall not exceed the limits for mycotoxins given in Table **4** when tested in accordance with the method given in the Column **4** of the Table **4**.

TABLE 4 - Mycotoxin limits for Split Lentils

SI No (1)	Mycotoxin (2)	Limit (3)	Method of test (4)
i	Total Aflatoxin (B_1+B_2+G_1 +G_2) µg/ kg, max.	4	**SLS 962 Part 1**

7 PACKAGING

The product shall be packaged in food grade packages which will safeguard the hygienic, and organoleptic properties of the product.

8 MARKING AND/ OR LABELLING

8.1 The following shall be marked or labelled legibly and indelibly on each package:

a) Name of the product as "Split lentil";
b) Name and address of the processor, packer or distributor (including country of origin);
c) Brand name or trade mark, if any;
d) Batch or code number;
e) Net mass, in g or kg;
f) Date of manufacture; and
g) Date of expiry

8.2 The marking and labeling shall also be in accordance with **SLS 467**.

9 SAMPLING

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

10 METHODS OF TEST

10.1 Tests shall be carried out as prescribed in Appendix **B** given in this Standard, **Section 2** of **Part 2** of **SLS 516, SLS 910, SLS 962 Part 1, SLS 1527, Part 1** of **SLS 1549** 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 container inspected as in **A.4.1** satisfies the packaging and marking and/ or labelling requirements of this Standard.

11.2 The test results of the sample when tested as in **A.4.2** satisfy the requirements given in Clause **6** of this Standard.

APPENDIX A
COMPLIANCE OF A LOT

A.1 LOT

In any consignment, all the packages of the same variety and belonging to one batch of manufacture or supply shall constitute a lot.

A.2 GENERAL REQUIREMENTS OF SAMPLING

When drawing, preparing, storing and handling samples, the following precautions shall be taken:

A.2.1 Samples for microbiological analysis shall be drawn first.

A.2.2 Sampling shall be carried out in such a manner as to protect the sample from adventitious contamination.

A.2.3 The sampling instruments shall be clean and dry when used. When drawing samples for microbiological examination, the sampling instruments shall be sterilized.

A.2.4 The sample containers shall be sealed air-tight and marked with necessary details of sampling.

A.3 SAMPLING

A representative sample of the product in a lot for ascertaining conformity to the requirements of this Standard shall be drawn in accordance with Clause **5** of **SLS 528**.

A.4 NUMBER OF TESTS

A.4.1 Each container selected as in **A.3** shall be inspected for packaging and marking and/or labelling requirements given in Clause **7** and **8** of this Standard.

A.4.2 The sample prepared as in **SLS 528** shall be tested for the requirements given in Clause **6** of this Standard.

APPENDIX B
DETERMINATION OF UNHUSKED, DAMAGED, BROKEN AND IMMATURE SEEDS

B.1 Apparatus

B.l.1 Balance, having a sensitivity of 1 mg.

B.1.2 Magnifying glass, having a magnification of 10.

B.2 Procedure

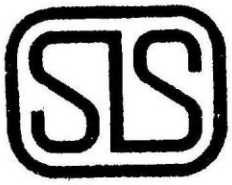
Mix the sample well which has been free from foreign matter (Refer **SLS 1527**). Take three 100g representative samples weighed to the nearest 0.1 g. Using each of the samples, visually separate the following:

a) Unhusked;
b) Broken and immature; and
c) Damaged
Calculate the per cent by mass.

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.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

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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