SRI LANKA STANDARD 858: 2019
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SPECIFICATION FOR RICE NOODLES (RICE VERMICELLI) (*First Revision*)

SRI LANKA STANDARDS INSTITUTION

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SLS 858: 2019

Gr. 7

SRI LANKA STANDARDS INSTITUTION
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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 RICE NOODLES (RICE VERMICELLI)
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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 2019-03-07.

The main ingredients of rice noodles are rice or rice flour and water. However, sometimes other ingredients such as tapioca or corn starch are also added in order to improve the transparency or increase the gelatinous and chewy texture of the noodles. Rice noodles are the second most common rice product used in Asia, behind rice grains. Rice noodles do not contain gluten, which makes them a good choice for people with gluten sensitivities or celiac disease. Rice noodles are also referred to as rice vermicelli or rice sticks.

This Standard was first published in 1989. In this first revision, total protein has been included as a requirement for the product and limits for potentially toxic elements and mycotoxins have been introduced to safeguard the consumer.

This Standard is subject to the Food Act No. 26 of 1980 and the regulations framed thereunder wherever applicable.

For the purpose of deciding whether a particular requirement of this Standard is complied with, the final value, observed or calculated, expressing the results of a test shall be rounded off in accordance with **SLS 102**. The number of significant 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, valuable assistance derived from the publications of the Thai Standards Institution is gratefully acknowledged.

1 SCOPE

This Standard prescribes the requirements, methods of sampling and test for rice noodles (rice vermicelli).

2 REFERENCES

SLS	80	Edible iodized salt (Powdered form)
SLS	102	Rules for rounding off numerical values
SLS	124	Test sieves
SLS	143	Code of practice for general principles of food hygiene
SLS	428	Random sampling methods
SLS	467	Code of practice for labeling of prepackaged foods
SLS	614	Potable water
SLS	633	Milled rice

SLS 913 Rice flour
SLS 962 Methods of test for aflatoxin in foods. Part 1 Determination of aflatoxin B_1, and the total content of aflatoxins B_1, B_2, G_1 and G_2 in cereals, nuts and derived products – High performance liquid chromatographic method
Official methods of Analysis, Association of Official Analytical Chemists (**AOAC**) 20th edition, 2016

3 DEFINITIONS

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

3.1 rice noodles (rice vermicelli): An edible product prepared mainly from rice or rice flour, with or without the addition of other flour. It shall be a product of an extrusion, steaming and drying process and shall be in the form of long threads/ sticks.

4 INGREDIENTS

All ingredients used in the preparation of the product shall be clean, wholesome and free from evidence of insect and rodent infestation and other extraneous matter. In addition, ingredients used shall not contain any substance in such amounts that may present a hazard to human health.

4.1. Basic Ingredients

Following ingredients shall be used in preparation of rice noodles:

4.1.1 *Rice,* conforming to **SLS 633** and/ or *rice flour,* conforming to **SLS 913**
4.1.2 *Potable water*, conforming to **SLS 614**

NOTE
Rice/ rice flour content shall be not less than 80 *per cent by mass.*

4.2 Optional ingredients

4.2.1 *Other edible flour*, conforming to relevant Sri Lanka Standard Specifications
4.2.2 *Edible iodized salt (Powdered form)*, conforming to **SLS 80**
4.2.3 *Minerals:* Calcium, phosphorus and iron
4.2.4 *Vitamins:* A, B complex and D

5 REQUIREMENTS

5.1 Hygiene

Rice noodles (rice vermicelli) shall be processed, packaged, stored and distributed under hygienic conditions as prescribed in **SLS 143.**

5.2 General

The product shall be free from moulds, insect infestation, impurities and any other foreign matter. It shall be free from any evidence of staleness and bitterness. The product shall not contain more than 15 per cent of broken and misshapen units.

5.3 Form and dimension

The product shall be in the form of strands or solid rods of diameter not exceeding 2.00 mm.

5.4 Other requirements

The product shall comply with the requirements given in Table **1** when tested in accordance with the methods prescribed in Column **4** of the table.

TABLE 1 – Requirements for rice noodles (rice vermicelli)

Sl No (1)	**Characteristic** (2)	**Requirement** (3)	**Method of test** (4)
i)	Moisture, per cent by mass, max.	12.0	Appendix **B**
ii)	Total ash, per cent by mass, on dry basis, max*.	1.0	Appendix **C**
iii)	Acid insoluble ash, per cent by mass on dry basis, max.	0.1	Appendix **D**
iv)	Total protein, per cent by mass on dry basis, min.	5.0	Appendix **E**
v)	Cooking test: Total solids in gruel, per cent by mass, max.	6.0	Appendix **F**

* *If salt, vitamins and minerals are added, total ash, per cent by mass on dry basis shall not exceed* 1.5

6 CONTAMINANTS

6.1 Potentially toxic elements

The product shall not exceed the limits given in Table **2** when tested in accordance with the methods prescribed in Column **4** of the table.

TABLE 2 – Limits for Potentially toxic elements

Sl. No (1)	Potentially toxic elements (2)	Requirement (3)	Method of test (4)
i)	Arsenic as As, mg/ kg, max.	0.1	AOAC 986.15
ii)	Lead as Pb, mg/ kg, max.	0.2	AOAC 999.10
iii)	Cadmium as Cd, mg/ kg, max.	0.1	AOAC 999.10

6.2 Mycotoxins

The product shall not exceed the limits given in Table **3** when tested in accordance with the methods prescribed in Column **4** of the table.

TABLE 3 – Limits for mycotoxins

Sl No (1)	Mycotoxins (2)	Requirement (3)	Method of test (4)
i)	Total aflatoxins, µg/ kg, max.	10	SLS 962
ii)	Aflatoxins B_1, µg/ kg, max.	5	SLS 962

7 PACKAGING

The product shall be packaged in moisture proof food grade containers/ packages with barrier properties for moisture which will safeguard the hygienic, nutritional and organoleptic qualities of the product. The containers including the packaging material shall be made of substances which are safe and suitable for intended use and shall not impart any toxic substances or undesirable flavours to the product.

8 MARKING AND/ OR LABELLING

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

a) Name of the product as “Rice noodles” or “Rice vermicelli”;
b) Brand name or trade mark, if any;
c) Net mass, in g or kg;
d) Name and address of manufacturer and packer/distributor in Sri Lanka;
e) Country of origin, in case of imported products;
f) Batch number or code number or a decipherable code marking;
g) Date of manufacture;

h) Date of expiry;
j) List of ingredients in descending order of their proportions; and
k) Directions for preparation, including cooking time.

8.2 Marking and labeling shall 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

Product shall be tested for ascertaining conformity of the material to the requirements of this Standard by the methods of test given in **SLS 962**, Appendices **B, C, D, E** and **F** of this Standard, and Official Methods of Analysis of the Association of Official Analytical Chemists (**AOAC**), 20th Edition, 2016.

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.4.1** satisfies the packaging, marking and/or labelling requirements.

11.2 Each package examined as in **A.4.2** satisfies the relevant requirements given in **5.2** and **5.3.**

11.3 Each sample tested as in **A.4.3** satisfies the relevant requirements given in i), ii), iii) ,iv) and v) of Clause **5.4**.

The values of the expression $\bar{x} + l.1s$ (*see* Notes) calculated using the test results on moisture content, total ash content, acid insoluble ash and total solids in gruel is less than or equal to the corresponding limits given in this specification.

NOTES

1. *Mean ($\bar{x}$) = The sum of values, of the observations divided by the number of observations*

2. *Standard deviation (s) - The positive square root of the quotient obtained by dividing the sum of squares of the deviations of the observations from their mean by one less than the number of observations.*

11.4 The test results on composite sample when tested as in **A.4.4** satisfy the relevant requirements given in Serial Number **iv** of **5.4, 6.1** and **6.2**.

APPENDIX A
SAMPLING

A.1 LOT

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

A.2 GENERAL REQUIREMENTS OF SAMPLING

In drawing, preparing, sorting and handling samples, following precautions and directions shall be taken:

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

A.2.2 Samples shall be protected against adventitious contamination.

A.2.3 The samples shall be placed in clean and dry containers. The size of the sample containers shall be of such size that they are almost completely filled by the sample.

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

A.2.5 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the room temperature.

A.3 SCALE OF SAMPLING

A.3.1 Samples shall be tested from each lot for ascertaining the conformity of the lot for the requirements of this Standard.

A.3.2 The number of cartons or containers to be selected from a lot shall be in accordance with Table **4**.

TABLE 4 - Scale of sampling

No. of packages or containers in the lot (1)	**Number of packages or containers in the lot to be selected** (2)
Up to 500	5
501 to 1 200	7
1201 to 3000	10
3001 to 5000	12
5001 and above	15

A.3.3 The packages shall be selected at random. In order to ensure randomness of selection, tables of random numbers as given in **SLS 428** shall be used.

A.4 NUMBER OF TESTS

A.4.1 Each package selected as in **A.3.2** shall be inspected for packaging and marking and/ or labeling requirements.

A.4.2 Each package selected as in **A.3.2** shall be examined for the requirements given in **5.2** and **5.3.**

A.4.3 Each package selected as in **A.3.2** shall be tested for moisture, total ash, acid insoluble ash and total solids in gruel.

A.4.4 A sufficient quantity of material shall be drawn from each package selected as in **A.3.2** and mixed to form a composite sample.

The composite sample thus obtained shall be tested for total protein content, potentially toxic elements and mycotoxins.

APPENDIX B
DETERMINATION OF MOISTURE

B.1 APPARATUS

B.1.1 Desiccator

B.1.2 Dish, with lid porcelain, silica or aluminium

B.1.3 Drying oven, capable of being controlled at 105 ±2 °C.

B.1.4 Mortar and pestle

B.1.5 Sieve, 425 µm conforming to **SLS 124**.

B.2 PROCEDURE

B.2.1 Grind about 30 g of the material in a mortar with a pestle so that at least 90 per cent passes through the sieve (**B.1.5**). Transfer the prepared sample to a well-stoppered glass bottle.

B.2.2 Weigh, to the nearest 0.001 g, about 5 g of the prepared sample in a suitable dish (**B.1.2**), previously dried in a drying-oven and weighed. Place the dish in a drying-oven maintained at 105 ±2 °C for five hours. Cool the dish in a desiccator and weigh the dish with the lid. Heat again at 105 ±2 °C in the drying oven for 30 minutes. Cool the dish in the desiccator and weigh. Repeat this process of heating for 30 minutes, cooling and weighing till the difference in mass between two successive weighings is less than one milligram. Note the lowest mass.

NOTE
Preserve the dish containing this dried material for the determination of total ash.

B.3 CALCULATION

$$\text{Moisture, per cent by mass} = \frac{(m_1 - m_2)}{(m_1 - m_0)} \times 100$$

where,

m_0 is the mass, in g, of the empty dish;
m_1 is the mass, in g, of the dish with the material before drying; and
m_2 is the mass, in g, of the dish with the material after drying.

APPENDIX C
DETERMINATION OF TOTAL ASH

C.1 APPARATUS

C.1.1 Muffle furnace, capable of being controlled at 600 ±20 °C.

C.1.2 Meker burner

C.2 PROCEDURE

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C.2.1 Ignite the dried material (*see* Appendix **B**) in the dish with the flame of a Meker burner till it chars. Complete the ignition by keeping in a muffle furnace at 600 ±20 °C until grey ash results. Cool in a desiccator and weigh. Heat again at 600 ±20 °C in the muffle furnace for 30 minutes. Cool in the desiccator and weigh. Repeat the process of heating for 30 minutes, cooling and weighing till the difference in mass between the two successive weighings is less than one milligram. Note the lowest mass.

NOTE
Preserve the dish containing this ash for the determination of acid insoluble ash.

C.3 CALCULATION

$$\text{Total ash (on dry basis), per cent by mass} = \frac{(m_3 - m_0)}{(m_2 - m_0)} \times 100$$

where,
m_0 is the mass, in g, of the empty dish;
m_2 is the mass, in g, of the dish with the dried material taken for the test; and
m_3 is the mass, in g, of the dish, with the ash.

APPENDIX D
DETERMINATION OF ACID INSOLUBLE ASH

D.1 REAGENTS

D.1.1 Dilute Hydrochloric acid, approximately 5 M.

D .2 PROCEDURE

D.2.1 To the ash contained in the dish (*see* Appendix **C**), add 25 ml of dilute Hydrochloric acid, cover with a watch-glass and heat on a water-bath for 10 minutes. Allow to cool and filter the contents of the dish through Whatman ashless filter paper No. 42 or its equivalent. Wash the filter paper with warm water until the washings are free from acid. Return the filter paper and the residue to the dish. Dry it in a drying-oven maintained at 105 ±2 °C for about, three hours. Ignite in the muffle furnace at 600 ±20 °C for one hour. Cool the dish in a desiccator and weigh. Heat again at 600±20 °C in the muffle furnace for 30 minutes. Cool the dish in the desiccator and weigh.

Repeat the process of heating for 30 minutes cooling and weighing till the difference in mass between two successive weighings is less than one milligram. Note the lowest mass.

D.3 CALCULATION

$$\text{Acid insoluble ash (on dry basis), per cent by mass} = \frac{(m_4 - m_0)}{(m_2 - m_0)} \times 100$$

where,

m_0 is the mass, in g, of the empty dish;
m_2 is the mass, in g, of the dish, with the dried material taken for the determination of total ash; and
m_4 is the mass, in g, of the dish with the acid insoluble ash.

APPENDIX E
DETERMINATION OF TOTAL PROTEIN

E.1 APPARATUS

E.1.1 Nitrogen distillation apparatus

E.2 REAGENTS

E.2.1 Boric acid, solution 2 per cent (v/v)**.**

E.2.2 Catalyst mixture, containing 96 per cent Anhydrous sodium sulfate, 3.5 per cent Copper sulfate and 0.5 per cent Selenium dioxide.

E.2.3 Concentrated Sulfuric acid, relative density = 1.84.

E.2.4 Screened methyl red indicator, containing 0.016 per cent Methyl red and 0.083 per cent Bromo-cresol green in alcohol.

E.2.5 Sodium hydroxide, solution 50 per cent (v/v).

E.2.6 Sulfuric acid, standard volumetric solution, c (H_2SO_4) = 0.05 mol/1.

E.2.7 Zinc, granules.

E.2 PROCEDURE

Weigh to the nearest milligram 2 g of the sample, and transfer to a Kjeldahl digestion flask. Add 8 g of catalyst mixture (**E.2.2**) and 20 ml of concentrated Sulfuric acid. Heat the flask in an inclined position in a fume hood. When the initial frothing has ceased, fit a loose pear stopper and heat more strongly, so that the liquid boils at a moderate rate. Shake the flask from time to time and continue the heating for one hour after the liquid has become clear. Cool and wash the digest into the distilling flask, with 400 ml of "ammonia-free" water and add about 3 g of Zinc granules. To the receiving flask add 50 ml of Boric acid solution (**E.2.1**) and screened methyl red indicator (**E.2.4**). Connect the distillation apparatus with the delivery tube dipping below the boric acid solution. Make the diluted digest alkaline with about 75 ml of Sodium hydroxide solution (**E.2.5**). Close the tap and distill the ammonia into the Boric acid solution. After about 300 ml has distilled over, open the tap and wash the condenser and delivery tube into the receiver. Titrate the distillate with Sulfuric acid (**E.2.6**).

Carry out a blank titration using all reagents in the same quantities but without the material to be tested.

NOTE
The blank should not exceed 0.5 *ml of Sulfuric acid* ***(*E.2.6*)***.

E.4 CALCULATION

$$\text{Total protein (on dry basis), per cent by mass} = \frac{798\ (V_1 - V_2)c}{m\ (100 - M)} \quad \text{x } 2$$

where,

m is the mass, in g, of the prepared material taken for the test;
V_2 is the volume, in ml of the standard Sulfuric acid required for the blank determination;
V_1 is the volume, in ml of the standard Sulfuric acid required for titration the distillate in the test with the material;
c is the concentration, mol/1 of the standard Sulfuric acid solution; and
M is the moisture per cent by mass of the material (see Appendix **B**).

APPENDIX F
DETERMINATION OF TOTAL SOLIDS IN GRUEL

F.1 APPARATUS

F.1.1 Drying oven, capable of being controlled at 105 ±2 °C.

F.1.2 Hot plate or **bunsen burner**

F.1.3 Lipless beaker, tal1-form, capacity 500 ml.

F.1.4 Water bath

F.2 PROCEDURE

F.2.1 Take 250 ml of water into lipless beaker and heat over hotplate or bunsen burner till water boils. Introduce 25.0 g of the material (previously broken into about l0 mm lengths in case of long rice noodles) and stir thoroughly with a glass rod. Cook according to the labeling instructions (*see* Clause **8.1**). Then allow the material to drain through a strainer for five minutes. Measure the volume of gruel collected. Pipette 20 ml of the gruel, after stirring well to give an even distribution of the solid content, into a previously tared suitable dish and evaporate to dryness on a water bath. Transfer the dish to a hot drying-oven maintained at 105 ±2 °C and heat for two hours. Cool the dish in a desiccator and weigh. Heat again at 105 ±2 °C in the drying-oven for 30 minutes. Cool the dish in the desiccator and weigh. Repeat this process of heating for 30 minutes, cooling and weighing till the difference in mass between two successive weighings is less than one milligram. Note the lowest mass.

F.3 CALCULATION

Total solids in gruel, per cent by mass = $= \frac{(m_1 - m_0)v}{5}$

where,

m_o is the mass, in g, of the empty dish;
m_1 is the mass, in g, of the dish with the total solids present in 20 ml of gruel; and
v is the volume, in ml, of gruel.

SLS CERTIFICATION MARK

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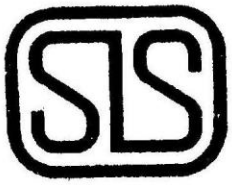

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SRI LANKA STANDARDS INSTITUTION

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