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பொதுசனக் கருத்துரைக்கான கட்டளை வரைவு
DRAFT STANDARD FOR PUBLIC COMMENT

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Draft Sri Lanka Standard
SPECIFICATION FOR PROCESSED GRAIN BASED FOOD PRODUCTS
PART 1 : MULTI/ MIXED GRAIN
(DSLS..... :)

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இவ்வரைவு இயங்கவைக் கட்டளைவெனக் கருதப்படக்கூடாது. ஆன்றிப் பிரயோகிக்கப்படக்கூடாது.
This draft should not be regarded or used as a Sri Lanka Standard.

අදහස් පිටිය යුත්තේ : ශ්‍රී ලංකා ප්‍රමිති ආයතනය, 17, වික්ටෝරියා පෙදෙස, ඇල්විටිගල මාවත, කොළඹ 08.

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

හැඳින්වීම

මෙම ශ්‍රී ලංකා ප්‍රමිති කෙටුම්පත , ශ්‍රී ලංකා ප්‍රමිති ආයතනය විසින් සකසන ලදුව, සියලුම උදෙසාම අංශ වලට තාක්ෂණික විවේචනය සඳහා යවනු ලැබේ.

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ඇල්විගල මාවත,
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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 PROCESSED GRAIN BASED FOOD PRODUCTS
PART 1: MULTI / MIXED GRAIN

DSLS ::Part 1:.....

DRAFT FOR PUBLIC COMMENTS

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SRI LANKA.

Draft Sri Lanka Standard
SPECIFICATION FOR PROCESSED GRAIN BASED FOOD PRODUCTS
PART 1: MULTI / MIXED GRAIN

FOREWORD

This 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

Most of the processed grain food products are usually consumed as breakfast. These products are mainly classified based on the type of the processed grain used as raw material. Mixed grain/ multigrain Processed foods are made from more than one type of grain. Since multigrain is a mix of two or more grains, its nutritional value is more than that of single grain if it is properly mixed.

This Standard is subject to the restrictions imposed under the Sri Lanka Food Act No.26 of 1980 and the 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 an analysis shall be rounded off in accordance with **SLS 102**. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this Standard.

In formulating of this Standard, the valuable assistance derived from the following publications is gratefully acknowledged:

Codex Alimentarius Commission

1 SCOPE

1.1 This Standard prescribes the requirements, methods of sampling and testing for processed multi / mixed grain based food products intended for consumption with or without preparation under given instructions.

1.2 Noodles, pasta products, bakery products (such as bread, biscuit etc) and processed cereal foods for infant and young children have been excluded in this Standard.

1.3 Instant traditional flour mixes such as hopper, thosai etc are also excluded from this Standard.

2 REFERENCES

SLS	80	Food grade iodized salt (powdered) form
SLS	102	Rules for rounding off numerical values
SLS	143	Code of practice for general principles of food hygiene
SLS	303	Method for the determination of Cadmium
SLS	311	Method for the determination of Lead

SLS	312	Method for the determination of Arsenic
SLS	428	Random sampling methods
SLS	467	Code of practice for labelling of prepackaged foods
SLS	516	Microbiology of food and animal feeding stuffs Part 1: Horizontal method for the enumeration of microorganisms 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 0.59 Part 3: Horizontal method for the detection and enumeration of coliforms Section 1: Most probable number technique Part 5: Horizontal method for the detection of <i>Salmonella</i> Part 12: Horizontal methods for the detection and enumeration of presumptive <i>Escherichia coli</i>
SLS	962	Method of test for aflatoxin in food 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
SLS	1549	Methods of test for cereals, pulses and derived products Part 1: pulses- determination of moisture content-air-oven method Part 2: Determination of the nitrogen content and calculation of the crude protein content- kjeldhal method Part 4: Determination of ash yield by incineration

Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC), 20th Edition

3 DEFINITIONS

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

3.1 processed grain based food products: Products prepared primarily from one or more cereals, blended with or without any other legumes and oil seeds

3.2 multi / mixed grain based food products: Processed grain based food products which are made from more than one type of grain with considerable proportions of each grains

4 TYPES

Processed multi / mixed grain based food products shall be of following types:

4.1 Precooked products which require to be prepared for consumption, with milk or any appropriate food/ liquid.

4.2 Products which require to be consumed after cooking with milk or any appropriate liquid.

4.3 Ready to eat multi/ mixed grain food products

5 INGREDIENTS

5.1 Basic ingredients

The product shall be prepared primarily from a mixture of grains such as one or more cereals (rice, maize/ corn, oats, millet, wheat, barley, rye, buckwheat) and/ or legumes (pulses), oil seeds (such as groundnut, sesame and soya).

5.2 Optional ingredients

- 5.2.1 *Starchy roots (such as arrow root, yam or cassava) or starchy stems*
- 5.4.2 *Edible oil*
- 5.4.3 *Coconut kernel products*
- 5.4.4 *Cereal bran*
- 5.4.5 *Sucrose, Fructose, Glucose, Glucose syrup, Corn syrup, Honey, Treacle or Maple syrup*
- 5.4.6 *Milk and milk products*
- 5.4.7 *Malt and malt extract*
- 5.4.8 *Processed fruits and vegetables and their products*
- 5.4.9 *Nuts and other edible seeds*
- 5.4.10 *Salt conforming to SLS 80*
- 5.4.11 *L (+) lactic acid producing cultures*
- 5.4.12 *Vitamins and minerals*
- 5.4.13 *Chocolate and cocoa powder*
- 5.4.14 *Coffee, tea extract*
- 5.4.15 *Prebiotics and probiotics*
- 5.4.16 *Herbs, spices and condiments*
- 5.4.17 *Maltodextrin*
- 5.4.18 *Meat, fish, egg and their products*
- 5.4.19 *Protein isolates and concentrates*
- 5.4.20 *Food additives*
 - 5.4.20.1 *Permitted food colouring and flavouring substances*
 - 5.4.20.2 *Packaging gases*
 - 5.4.20.2 a *Carbon dioxide INS 290*
 - 5.4.20.2.b *Nitrogen INS 941*

6 REQUIREMENTS

6.1 Hygiene

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

6.2 General requirements

6.2.1 All ingredients, including optional ingredients shall be clean, safe, suitable and of good quality.

6.2.2 When legumes are used, trypsin inhibitor activity should be inactivated.

6.2.3 The product shall be free from living insects or dead insects, insect fragments and rodent contaminations visible to the naked eye (corrected, if necessary for abnormal vision) with the aid of a suitable magnification (not exceeding x10).

6.2.4 The product shall be free from foreign and extraneous matter.

6.3 Other requirements

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

Table 1 – Other requirements

SI No.	Characteristic	Requirement	Method of test
(1)	(2)	(3)	(4)
i)	Moisture, per cent by mass, (max.) *	6.0	SLS 1549: Part 1
ii)	Acid insoluble ash, per cent by mass, (max.)	0.2	SLS 1549: Part 4
iii)	Protein, per cent by mass, min. (N x 5.8)	7.0	SLS 1549: Part 2

* maximum moisture content of ready to eat grain bars shall not exceed 12.0 per cent by mass.

6.4 Microbiological limits

The product shall comply with the microbiological limits given in Table 2 when tested in accordance with Column 5 of the Table.

Table 2-Microbiological limits

SI No.	Type of the Product	Test organism	Limit	Method of test
(1)	(2)	(3)	(4)	(5)
i)	Uncooked products	Aerobic Plate Count per g	1 x10 ⁶	SLS 516: Part 1: Section 2
		Coliforms per 10 g	1 x 10 ²	SLS 516: Part 3: Section 1
		<i>E. coli</i> per 10 g	absent	SLS 516: Part 12
		<i>Salmonella</i> per 25 g	absent	SLS 516: Part 5
		Yeast and mould count	1 x 10 ²	SLS 516: Part 2: Section 2
ii)	Pre- Cooked / Ready to eat products	Aerobic Plate Count per g	1 x 10 ⁴	SLS 516: Part 1: Section 2
		Coliforms per 10 g	1 x 10	SLS 516: Part 3: Section 1
		<i>E. coli</i> per 10 g	absent	SLS 516: Part 12
		<i>Salmonella</i> per 25 g	absent	SLS 516: Part 5
		Yeast and mould count	1 x 10 ²	SLS 516:Part 2: Section 2

7 CONTAMINANTS

7.1 Mycotoxin

The product shall not exceed the limits for mycotoxins given in Table 3, when tested according to the methods given in Column 4 of the table.

TABLE 3 - Limits for mycotoxins

SI No. (1)	Mycotoxin (2)	Limit (3)	Method of test (4)
i)	Total aflatoxins, µg/ kg, max	10	SLS 962 : Part 1/ AOAC 968.22
ii)	Aflatoxins B ₁ , µg/ kg, max.	5	SLS 962 : Part 1/ AOAC 968.22

7.2 Pesticide residues

Product shall be processed with special care under Good Agricultural Practices and Good Manufacturing Practice **SLS 143**, so that residues of those pesticides which may be required in the cultivation and production do not remain or if practically unavoidable, are reduced to the maximum extent possible.

NOTE

It is not necessary to carry out this determination as a routine for all the samples. This should be tested in case of dispute and when required by the purchaser or vendor or when there is any suspicion of pesticide contamination.

7.3 Potentially toxic elements

The product shall not exceed the limits for potentially toxic elements given in Table 4, when tested according to the methods given in Column 4 of the table.

TABLE 4 - Limits for potentially toxic element

SI No. (1)	Potentially toxic element (2)	Limit (3)	Method of test (4)
i)	Arsenic as As, mg/ kg, max.	0.1	AOAC 986.15 /SLS 312
ii)	Lead as Pb, mg/ kg, max	0.2	AOAC 994.02/SLS 311
iii)	Cadmium as Cd, mg/ kg, max.	0.2	AOAC 999.11/SLS 303

8 PACKAGING

8.1 The containers, including packaging material, shall be made of food grade substances which are safe and suitable for their intended use.

8.2 The packaging material which comes into contact directly with the product shall be sufficiently inert to preclude substances from being transferred to food in quantities

large enough to endanger human health or to bring about an unacceptable change in the composition of the product or deterioration in its organoleptic properties.

9 MARKING AND /OR LABELLING

9.1 The following shall be marked and/ or labelled legibly and indelibly on each container destined for the final consumer.

- a) The common name of the product as “Processed multi/mixed grain food product”, “Processed multi/mixed cereal food product”, “precooked multi/mixed grain food product”, “precooked multi/mixed cereal food product”, “ready to eat multi/mixed grain food product”, “ready to eat multi/mixed cereal food product including form of presentation where applicable as grain/ cereal flakes”, “puffed grain/ cereal”, “cereal/ grain bars”, “grain/ cereal powder”
- b) Brand name or trade name, if any;
- c) Net mass in ‘g’ or ‘kg’;
- d) Any permitted food additive’s name and INS number if any;
- e) Name and address of the manufacturer and packer/ distributor in Sri Lanka;
- f) Batch or code number or a decipherable code marking;
- g) Date of manufacture;
- h) Date of expiry;
- j) Country of origin, in case of imported products;
- m) List of ingredients in descending order of proportion;
- n) Storage instructions, if any; and
- p) Instructions for preparation, If any.

9.2 The marking and/ or labeling shall also be in accordance with **SLS 467**.

10 SAMPLING

Representative samples of the product shall be drawn as prescribed in Appendix A.

11 METHODS OF TEST

Tests shall be carried out as prescribed in **SLS 303, SLS 311, SLS 312, Section 2/ Part 1, Section 2/ Part 2, Section 1/ Part 3, Part 5 and part 12 of SLS 516, SLS 962 Part 1, Part 2 and Part 4 of SLS 1549**, Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC), 20th Edition, 2016.

12 CRITERIA FOR CONFORMITY

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

12.1 Each container or package examined as in **A.6.1** satisfies the packaging and marking and/ or labelling requirements.

12.2 Each individual sample tested as in **A.6.2** satisfy the relevant requirements given in **6.2.3** and **6.2.4**.

12.3 Test results on the composite sample tested as in **A.6.3** satisfy the relevant requirements given in **6.3** and **7**.

12.4 Each of the samples tested as in **A.6.4** satisfies the microbiological requirements given in **6.4**.

APPENDIX A SAMPLING

A.1 LOT

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

A.2 GENERAL REQUIREMENTS OF SAMPLING

In drawing, preparing, storing and handling samples, 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 instruments shall be clean and dry when used. When drawing samples for microbiological examination, the sampling instruments shall be sterilized.

A.2.3 The samples shall be protected against adventitious contamination.

A.2.4 The samples shall be placed in clean and dry containers. The size of the sample containers shall be such that they are almost completely filled by the sample. When drawing samples for microbiological examination, the sample containers shall be sterilized.

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 room temperature.

A.3 SCALE OF SAMPLING

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

A.3.2 The number of containers or packages to be selected from a lot shall be in accordance with Table 5.

TABLE 5 - Table of sampling

No. of containers/ packages in the lot (1)	No. of containers/ packages to be selected (2)
Up to 1000	15
1001 to 3000	18
3001 to 10000	20
10001 and above	25

A.3.3 The containers or 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.4 PREPARATION OF SAMPLES

A.4.1 Preparation of samples for microbiological examination

Ten containers or packages shall be selected from the containers or packages selected as in **A.3.2**. Sufficient quantity of material shall be drawn from the top, middle and bottom portions of each container or package so selected using an appropriate sampling instrument. The material obtained from each container or package shall be mixed separately under aseptic conditions to form individual samples. The individual samples so obtained shall be transferred separately into sterile sample containers and marked with necessary details of sampling.

A.4.2 Preparation of samples for examination of general requirements

A sufficient quantity of material shall be drawn from the top, middle and bottom portions of each remaining container or package (after selecting for microbiological examination) selected as in **A.3.2** using an appropriate sampling instrument. The material obtained from each container shall be mixed separately to form individual samples and transferred to separate sample containers.

A.4.3 Preparation of the composite sample

An equal quantity of material shall be drawn from the top, middle and bottom portions of each remaining container or package (after selecting for microbiological examination) selected as in **A.3.2** using an appropriate sampling instrument. The material so obtained shall be mixed together to form a composite sample and transferred to a sample container.

A.5 REFERENCE SAMPLE

If reference samples are required for tests other than microbiological examination, the

number of containers / packages to be selected shall be as three times the size given in Column 2 of Table 5. The containers / packages so selected shall be separated into three parts. One of these shall be marked for the purchaser, one for the vendor and the third for reference.

A.6 NUMBER OF TESTS

A.6.1 Each container or package selected as in **A.3.2** shall be examined for packaging and marking and /or requirements.

A.6.2 Individual samples prepared as in **A.4.2** shall be examined for the requirements given in **6.2.3** and **6.2.4**.

A.6.3 The composite sample prepared as in **A.4.3** shall be tested for the requirements given in **6.3** and **7**.

A.6.4 Each of the ten samples prepared as in **A.4.1** shall be tested for *Salmonella*. Five samples shall be selected from the samples prepared as in **A.4.1** and shall be tested for other microbiological requirements given in **6.4**.

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