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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 2 : CORN FLAKES
(DSLS..... :)

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இவ்வரைவு இயங்கக்கூடிய கட்டளையெனக் கருதப்படவேண்டாம். அன்றிப் பிரயோகிக்கப்படவேண்டாம்.

This draft should not be regarded or used as a Sri Lanka Standard.

අදහස් එවිය යුත්තේ : ශ්‍රී ලංකා ප්‍රමිති ආයතනය, 17, වික්ටෝරියා පෙරදෙස, ඇල්විට්ගල 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 උදෙසාමී අංශ වලට තාක්ෂණික විවේචනය සඳහා යවනු ලැබේ.

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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 2: CORN FLAKES

DSLS:: Part 2:

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SRI LANKA.

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Draft Sri Lanka Standard
SPECIFICATION FOR PROCESSED GRAIN BASED FOOD PRODUCTS
PART 2: CORN FLAKES

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

Cornflakes, is a cereal made by toasting flakes of corn (maize) and are generally served either with cold or hot milk and sugar. It is actually the most popular processed cereal food generally consumed as a breakfast food. The consumer demand for convenient foods grew due to busy lifestyles of the people leading to increase in consumption of edible flakes.

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.

1 SCOPE

This Standard prescribes the requirements and the methods of sampling and test for cornflakes.

2 REFERENCES

SLS	80	Food grade 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 0.5 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	972	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 corn flakes: Product prepared primarily from cleaned, degermed, dehulled and polished corn /maize, and then cooked after mixing with or without optional ingredients followed by flaking, partial drying and toasting to obtain the desired texture

3.3 muesli: Corn flakes with added dried fruits, nuts and / or seeds and may also contain other cereal flakes

4 TYPES

4.1 Plain

4.2 Flavoured

4.3 Coated

4.4 Muesli

5 INGREDIENTS:

5.1 Basic ingredients

5.1.1 *Corn/ maize*

5.2 Optional ingredients

5.1.1 *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
 - 5.4.20.3 *Antioxidants*
 - Btylated hydroxyanisole (BHA) INS 320 max. 200 mg/ kg
 - 5.4.20.4 *Emulsifiers*
 - 5.4.20.4.a Lecithins INS 322
 - 5.4.20.4.b Mono- and diglycerides INS 471
 - 5.4.20.4.c Acetic and fatty acid esters of glycerol INS 472 a
 - 5.4.20.4.d Lactic and fatty acid esters of glycerol INS 472 b
 - 5.4.20.4.e Citric and fatty acid esters of glycerol INS 472 c

6 REQUIREMENTS

6.1 General

6.1.1 Corn flakes shall be tender and crispy in texture, reasonably uniform in size and golden brown in colour. It shall possess characteristic flavour and odour and shall be free from rancid, musty, sour and other undesirable flavours or odours.

6.1.2 The flakes 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 x 10).

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

6.2 Hygiene

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

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 (1)	Characteristic (2)	Requirement (3)	Method of test (4)
(i)	Moisture, per cent by mass, Max.*	7.0	SLS 1549: Part 1
(ii)	Acid insoluble ash on dry basis, per cent by mass, Max.	0.1	SLS 1549: Part 4
(iii)	Protein (N x 6.25), per cent by mass, min.	6.0	SLS 1549: Part 2

*Moisture content of Muesli 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 4 of the Table.

TABLE 2-Microbiological limits

SI No. (1)	Test organism (3)	Limit (4)	Method of test (5)
i	Aerobic Plate Count per gram	1×10^4	SLS 516: Part 1: Section 2
ii	Coliforms per 10 g	1×10	SLS 516: Part 3: Section 1
iii	<i>E. coli</i> per 10 g	absent	SLS 516: Part 12
iv	<i>Salmonella</i> per 25 g	absent	SLS 516: Part 5
v	Yeasts and mould count	1×10^2	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, $\mu\text{g}/\text{kg}$, max	10	SLS 962 : Part 1 / AOAC 968.22
ii)	Aflatoxins B ₁ , $\mu\text{g}/\text{kg}$, 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 “corn flakes”, “Corn flakes - Muisle”, “x flavoured corn flakes”, “x Coated corn flakes”, where “X” denotes the flavor or coating used.
- 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;
- 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;
- k) List of ingredients in descending order of proportion;
- m) Storage instructions, if any; and
- p) Instructions for preparation.

9.2 The marking and 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 in **SLS 303, SLS 311, SLS 312, Section 2/ Part 1, Section 2/ Part 2, Section 3/ Part 3, Part 5 and Part 12 of SLS 516, Part 1 of 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 **6.1.1, 6.1.2 and 6.1.3**.

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 composite samples

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 three times the size as 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 **6.1.1**, **6.1.2** and **6.1.3**.

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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