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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
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17, Victoria Place,
Elvitigala Mawatha,
Colombo 08.

SPECIFICATION FOR FERMENTED MILK PRODUCTS
PART 2 : YOGHURT

DSLS 824 : .....

Gr.6

SRI LANKA STANDARDS INSTITUTION
17, Victoria place,
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SRI LANKA STANDARD
SPECIFICATION FOR FERMENTED MILK PRODUCTS
PART 2: YOGHURT

FOREWORD

This Specification 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 …….

This Specification was first published in 1988. In this revision, compositional requirements have been updated by introducing milk protein as a requirement and microbiological requirements by introducing three class monitoring plan and limits for *Salmonella*, *Staphyloccus aurius* and *Listeria monocytogenes*. Also the references to the latest methods of test have been given.

This specification (SLS 824) consists of two parts as follows:
Part 1 : Curd.
Part 2 : Yoghurt.

This specification is subject to the provisions of the Food Act No. 26 of 1980 and the regulations framed thereunder.

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 an analysis, shall be rounded off in accordance with **SLS 102**, The number of significant places retained in the rounded off value should be the same as that of the specified value in this specification.

In the preparation of this specification the assistance obtained from the publications of the Codex Alimentarius Commission, National Health and Medical Research Council of Australia and Bureau of Indian Standards is gratefully acknowledged.

1 SCOPE

This part of the specification prescribes the requirements and methods of sampling and test for yoghurt.

2 REFERENCES

ISO	**11290**	Microbiology of food and animal feeding stuffs -- Horizontal method for the detection and enumeration of *Listeria monocytogenes* -- Part 1: Detection method
ISO/TS	**11869**	Fermented milks -- Determination of titratable acidity -- Potentiometric method

SLS	**102**	Rules for rounding off numerical values
SLS	**143**	Code of practice for general principles of food hygiene
SLS	**191**	White sugar
SLS	**393**	Code of practice for preparation of test samples, initial suspension and decimal dilutions for microbiological examination of food and animal feeding stuffs Part 5 Specific rules for the preparation of milk and milk products
SLS	**516**	Method of test for microbiology of food and animal feeding stuffs Part 2 : Horizontal method for the detection and enumeration of yeast and moulds Section 1 : Colony count technique in products with water activity greater than 0.95 Part 3 : Horizontal method for the detection and enumeration of coliforms section 1: Most Probable Number Part 5 : Horizontal method for the detection of *Salmonella spp*. Part 6 : Horizontal method for the enumeration of coagulase positive *Staphylococcus aureus* and other spices Section 1 Part 12: Horizontal method for the detection and enumeration of presumptive *Escherichia coli* (most probable number method)
SLS	**614**	Potable Water
SLS	**735**	Methods of test for milk and milk products Part 1: Determination of fat Part 5: Determination of total solids
SLS	**872**	Code of hygienic practice for dairy industries
SLS	**1463**	General requirements and guidance for microbiological examinations of food and animal feeing stuffs.

3 DEFINITIONS

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

3.1 fermented milk products: The milk product obtained by fermentation of milk, which milk may have been manufactured from products obtained from milk with or without compositional modification as limited by the provision in Section **4.6**, by the action of suitable microorganisms and resulting in reduction of pH with or without coagulation (iso-electric precipitation). These starter microorganisms shall be viable, active and abundant in the product to the date of minimum durability. If the product is heat treated after fermentation the requirement for viable microorganisms does not apply.

3.2 yoghurt: A coagulated milk product obtained by fermentation through the action of a harmless lactic acid producing bacterial culture on milk and milk products such as pasteurized milk, concentrated milk, pasteurized partly skimmed milk, concentrated partly skimmed milk, pasteurized skimmed milk, concentrated skimmed milk, pasteurized cream, or any mixture of two or more of these products or milk powder, partly skimmed milk powder, skimmed milk powder and whey proteins. These microorganisms must be viable and abundant in the final product.
Yoghurt subjected to heat treatment after fermentation at temperature not less than 65 ^{0}C shall be

labelled as “thermised” or “heat treated” yoghurt and shall conform to the same standards except that they need not contain viable microorganisms.

3.3 fruit yoghurt : Yoghurt to which fruit has been added. The addition of fruit may be as fresh fruit, canned fruit, frozen fruit or dried fruit that can be separated from the yoghurt. It may contain fruit juice, fruit pulp, sugar, natural flavouring substances and permitted colouring substances. The yoghurt portion shall conform to the compositional standards specified for the product types specified in Section **4**.

3.4 flavoured yoghurt : Yoghurt to which flavouring ingredients such as fresh fruit, fruit puree, fruit pulp, jam, fruit syrup, fruit juice, treacle and honey may have been added. It may contain sugar, corn syrup or glucose syrup. It may contain permitted colouring substances and flavouring substances.

3.5 Jelly yoghurt : yoghurt to which jelly has been added as a distinctive layer. The yoghurt portion shall conform to the compositional standards specified for the product types specified in Section 4.

3.6 Drinking yoghurt : ready to serve drink prepared from yoghurt of low viscosity.

3.7 Unsweetened yoghurt: Yoghurt to which no sugars or sweeteners have been added. The yoghurt shall conform to the compositional standards specified for the product types specified in Section 4.

4 TYPES

Yoghurt shall be of the following three types:

a) Yoghurt;
b) Low-fat / partially skimmed yoghurt ; and
c) Non-fat / skimmed yoghurt.

5 INGREDIENTS

All ingredients used shall comply with the Food Act No. 26 of 1980 and the regulations framed thereunder.

5.1 Basic ingredients

5.1.1 *Milk*, one of the following types shall be used. It shall be pasteurized or sterilized.
a) cow and /or buffalo milk;
b) standardized milk;
c) skimmed milk /partially skimmed milk;
d) reconstituted milk; and

e) concentrated milk.

5.1.2 *Water*, water used for re-constitution of milk shall conform to **SLS 614**.

5.2 Optional ingredients

5.2.1 *Sugar*, conforming to **SLS 191**.

5.2.2 *Permitted colouring substances*.

5.2.3 *Flavouring substances*

5.2.4 *Stabilizers*
Gelatin, pectin, alginates, modified starch or agar-agar may be used as a stabilizer, singly or in combination and if used shall not exceed 1 per cent mass by mass of the product.

5.2.5 *Preservatives*,
Sodium or potassium and calcium salts of sorbic acid maximum 300 mg/kg. Fruit yoghurt shall not contain more than 50 mg/ kg Sulphur dioxide carried over from fruits and fruit based products.

5.2.5 *Fruit and fruit products* (for fruit yoghurt only)
Edible fruits, fruit pulps or juices, jams and honey may be used. The fruit juices shall be prepared from properly matured fruits free from seeds, skin and core. They shall be suitably pasteurized.

6 REQUIREMENTS

6.1 Hygienic requirements

Yoghurt shall be processed, packed, stored and distributed under hygienic conditions as specified in **SLS 143** and **SLS 872**.

6.2 General requirements

6.2.1 Yoghurt shall have a pleasant odour and characteristic flavour.
6.2.2 Yoghurt shall be clean, free from dirt and extraneous matter.

6.3 Fruit yoghurt shall contain not less than 5 per cent of fruit or fruit juice.

6.4 Compositional requirements

Yoghurt shall also comply with the requirements specified in Table **1**, when tested according to the methods prescribed in column **(7)** of the meeting.

TABLE 1 - Requirements for yoghurt

SI. No. (1)	Characteristic (2)	Yoghurt (3)	Low-fat yoghurt (4)	Non-fat yoghurt	Drinking yoghurt (6)	Method of test (7)
i)	Milk fat, per cent by mass	3.0 min.	0.5 to 3.0	**0.5 max**	2.2 **min**	**SLS 735: Part 1**
ii)	Milk solids not fat, per cent by mass, min.	8.0	8.0	8.0	6.0	**SLS 735:part 1 and/or SLS 735:part 5**
iii)	Milk protein, min.	2.7	2.7	2.7	2.7	**SLS 735**
iv)	pH	4.5	4.5	4.5	4.5	**Appendix C**

6.7 Microbiological limits

Yoghurt shall also conform to the microbiological limits specified in Table **2**, when tested according to the methods prescribed in Column (**4)** of the table.

TABLE 2 - Microbiological limits

SI NO (1)	Organism (2)	n (3)	c (4)	m (5)	M (6)	Method of test (7)
i)	*Coliform, MPN* per g	5	2	10	1×10^2	SLS 516 : part 3: Section 1
ii)	*Staphylococcus aureus (coagulase positive),* per g	5	2	10	1×10^2	SLS 516 : part 6: Section 1
iii)	Yeast and mould, per g	5	3	50	1×10^2	SLS 516 : part 2: Section 1
iv)	*Escherisia coli,* MPN per g	5	0	0	-	SLS 516 : part 12
v)	*Salmonella*, per 25 g	5	0	Absent	-	SLS 516 : part 5
vi)	*Listeria monocytogenes,* per g	5	0	Absent	-	ISO 11290

7 PACKAGING

7.1 Yoghurt shall be packed in clean and dry plastic containers suitable for food use and covered with a plastic lid or aluminum foil.

7.2 The packing 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.

8 MARKING AND/ OR LABELLING

8.1 The following shall be marked or labelled legibly and indelibly on each package or container destined for the final consumer :

a) The name of the product as;
   (i) "Yoghurt";
   (ii) "Low-fat Yoghurt" or "Partially skimmed Yoghurt";
   (iii) "Non-fat Yoghurt" or "Skimmed Yoghurt";
   (iv) "Unsweetened Yoghurt";
   (v) "Fruit Yoghurt";
   (vi) "Flavoured Yoghurt";
   (vii) "Jelly Yoghurt";
   (viii) " Drinking Yoghurt";
   (ix) "Thermised Yoghurt" or "Heat treated Yoghurt".
b) Brand name or trade mark, if any;
c) Net content, in 'g', 'kg', "ml" or "l";
d) The name and address of the manufacturer and/or distributor in Sri Lanka;
e) Batch or code number or a decipherable code marking;
f) Date of manufacture;
g) Date of expiry;
h) List of ingredients, in descending order of the proportion.
i) Any permitted food additive's name or INS number;
j) Country of origin, in case of imported products;
k) Storage conditions; and
l) Information for use.

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

9 SAMPLING

Representative samples of honey shall be drawn according to the method prescribed in Appendix **A.**

10 METHODS OF TEST

Test shall be carried out as specified in **SLS 516 : part 2 : Section 1, SLS 516 : part 3 : Section 1, SLS 516 : part 5, SLS 516 : part 6: section …, SLS 516 : part 12, SLS 735: part 1, SLS 735 : part 5, Appendix B, Appendix C and Appendix D**.

11 CRITERIA FOR CONFORMITY

The lot shall be declared as conforming to the requirements of this specification, if the following conditions are satisfied.

11.5.1 Each container inspected as in **A.4.1** satisfies the relevant requirements.

11.5.2 Each container tested as in **A.4.2** satisfies the microbiological requirements.

11.5.3 Each container examined as in **A.4.3** satisfies the relevant requirements.

11.5.4 The test results of the composite sample satisfy the relevant requirements.

APPENDIX A
COMPLIANCE OF A LOT

A.1 Lot

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

A.2 General requirements of sampling

In drawing, preparing, storing and handling samples the 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 The samples shall be protected against adventitious contamination.

A.2.3 The sampling instruments shall be clean and dry and shall not impact any foreign odour or flavour when used. When taking samples for microbiological examination the sampling instruments and containers shall be sterilized.

A.2.4 The samples shall be stored in such a manner that there will be no deterioration of quality of the material. Suitably at a temperature between 0^0C to 5^0C.

A.2.5 The samples shall be placed in containers shall be sealed air-tight after filling and marked with necessary details of sampling.

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 to be selected from a lot shall be in accordance with the Table **3**.

TABLE 3 - Scale of sampling

No. of containers in the lot (1)	No. of containers to be selected (2)
Up to 1 50	6
151 to 5 00	8
501 to 1 200	10
1201 to 3 000	15
3001 to 4 500	20
4501 and above	25

A.3.3 In addition to the Table **3**, 5 samples (5 containers) to be drawn for the microbiological testing.

A.3.4 The containers 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 container selected as in Column **2** of Table **3** shall be inspected for packaging and marking and/or requirements.

A.4.2 Each container (**A.3.3**) shall be examined for the microorganisms indicated in Clause **6.7**.

A.4.3 Each of the remaining containers shall be examined for requirements given in Clause **6.2** and **6.3**.

A.4.4 Sufficient quantity of material shall be taken from each of the containers examined in **A.4.3** and placed in a container to form a composite sample. The composite sample thus obtained shall be tested for the requirements given in Clause **6.4**.

APPENDIX B
MICROBIOLOGICAL EXAMINATION

Samples shall be examined within 24 hours of drawing at the laboratory and shall be held between 0 °C and 5 °C until the commencement of testing.

B.1 PREPARATION OF TEST SAMPLE

Sample shall be prepared in accordance with **SLS 393 : Part 3** clause **9.8**.

APPENDIX C
DETERMINATION OF MILK SOLIDS NON FAT

C.l INTRODUCTION

The amount of milk solids other than fat (MSNF) can be calculated approximately from individual constituents such as the protein, casein, calcium and lactose. The subtraction from the constituent when present from other sources (eg: calcium alginate, added lactose is however usually difficult to assess.)

This method employs the formal titration which is one of the simplest for assessing MSNF content. It has been shown that the result obtained is not affected by the presence of wheat flour and gelatine in the product.

C.2 REAGENTS

C.2.1 Phenolphthalein indicator solution

C.2.2 Sodium hydroxide, C (NaOH) = 0.100 mol/l

C.2.3 Formaldehyde, 40 per cent (V/V)

C.3 PROCEDURE

C.3.1 Weigh, to the nearest milligram, about 10 g of the prepared sample into a porcelain dish. Add 1 ml of phenolphthalein **(C.2.1)** and titrate with sodium hydroxide **(C.2.2)** until a faint pink colour is obtained.

Add 3.00 ml of formaldehyde solution **(C.2.3)** to the neutralized yogurt, mix with a glass rod and titrate with the sodium hydroxide using phenolphthalein as the indicator **(V_1).**

C.3.2 Carry out a blank titration, by titrating 3.00 ml of formaldehyde solution **(C.2.3)** to neutrality **(V2).**

C.4 CALCULATION

Milk solids non fat per cent by mass = 5.67 (V_1- V2)

Where,

V_1 is the volume, in ml, of the sodium hydroxide solution used in **C.3.1;** and

V_2 is the volume, in ml, of the sodium hydroxide solution used in **C.3.2.**

APPENDIX D
DETERMINATION OF pH

D.1 PROCEDURE

pH shall be determined using a pH meter preferably with a glass electrode.

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