SRI LANKA STANDARD 885: 2022
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SPECIFICATION FOR JELLY CRYSTALS (*First Revision*)

SRI LANKA STANDARDS INSTITUTION

Sri Lanka Standard
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(*First Revision*)

SLS 885: 2022

Gr.6

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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 JELLY CRYSTALS
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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 2022-07-07.

This Standard was first published in 1990. In this first revision, new types have been introduced and revised to be in line with the regulations. Microbiological requirements and potentially toxic elements have been included to safeguard the consumer.

This Standard is subject to the 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 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 revision of this Standard, valuable assistance derived from the following publications is gratefully acknowledged.

KS 1772-2003 Kenya Standard- Jelly powder and jelly crystals

1 SCOPE

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

2 REFERENCES

SLS 102 Presentation of numerical values
SLS 143 General principles of food hygiene
SLS 191 White sugar
SLS 428 Random sampling methods
SLS 516 Methods of test for microbiology of food and animal feeding stuffs
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 0.95
Part 5: Horizontal method for the detection of *Salmonella* spp.
Part 6: Horizontal method for the enumeration of coagulase positive staphylococci (*Staphylococcus aureus* and other species)
Section 1: Technique using Baird Parker agar medium
Part 12: Horizontal method for the detection and enumeration of presumptive *Escherichia coli* (Most probable number technique)
SLS 586 Methods of test for sugar confectionery

SLS 617 Glucose
SLS 845 Gelatine (Food grade)
SLS 883 Brown sugar
Official Methods of Analysis, Association of Official Analytical Chemists (**AOAC**) 20th edition, 2016

3 DEFINITIONS

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

3.1 jelly crystals: A product prepared from gelatine, sugar and/or glucose, permitted food acids, permitted flavouring substances and with or without the addition of optional ingredients listed in Clause **5.2**

3.2 energy reduced jelly crystals: A product to which it refers has an energy value reduced by at least thirty percent as compared with the original or a similar preparation

3.3 sugar free jelly crystals: Jelly crystals prepared by complete replacement of sugar by permitted sweeteners

3.4 diet jelly jelly crystals: Jelly crystals prepared by partial replacement of sugar by permitted sweeteners

4 TYPES

4.1 Jelly crystals

4.2 Diet jelly crystals

4.2.1 Energy reduced jelly crystals

4.2.2 Sugar free jelly crystals

5 INGREDIENTS

5.1 Basic ingredients

5.1.1 *Gelatine, conforming to* **SLS 845**

5.1.2 *Sugar, conforming to* **SLS 191** or **SLS 883**

5.1.3 *Food acids*

5.1.3.1	Citric acid	INS 330	Limited by GMP
5.1.3.2	Fumaric acid	INS 297	
5.1.3.3	Malic acid	INS 296	
5.1.3.4	Tartaric acid	INS 334	

5.1.4 *Permitted flavouring agents*

5.2 Optional ingredients

5.2.1 *Permitted food colours*
5.2.2 *Glucose*, conforming to **SLS 617**
5.2.3 *Permitted sweeteners* *
5.2.4 *Acidity regulators*

5.2.4.1	*Sodium citrate*	INS 331(iii)	Limited by GMP

NOTE
**Only for Energy reduced jelly crystals/ sugar free jelly crystals/ diet jelly crystals*

6 REQUIREMENTS

6.1 Hygiene

Jelly crystals shall be processed, packaged, stored and distributed under hygienic conditions as given in **SLS 143**.

6.2 General requirements

6.2.1 Jelly crystals shall be in the form of coarse to fine dry powder and stable at ambient temperature. It shall be free from moist lumps.

6.2.2 Jelly crystals shall have a pleasant odour and flavour characteristic of the descriptions appearing on the label.

6.2.3 Jelly crystals shall be free from dirt and/ or any other extraneous and foreign matter.

6.2.4 Jelly crystals shall satisfy the requirements of the test for gel strength with the method given in Appendix **B**.

6.2.5 Upon dissolving the product in accordance with directions of use stipulated on the product label, the solution shall have a uniform colour, characteristic flavour and free from suspended particles.

6.3 Chemical requirements

Jelly crystals 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 – Chemical requirements for jelly crystals

Sl NO (1)	**Characteristic** (2)	**Requirement** (3)	**Method of test** (4)
i)	Moisture, per cent by mass, max.	2.0	Clause **3** of **SLS 586**
ii)	Gelatine content, per cent by mass, min.	8	Clause **10** of **SLS 586**
iii)	Total sugars* as sucrose per cent by mass, min.	80.0	Clause **7** of **SLS 586**
iv)	Total ash, per cent by mass, max.	0.5	Appendix **C**
v)	Acidity as anhydrous citric acid, per cent by mass, min.	0.5	Appendix **D**

* *Not applicable for energy reduced jelly crystals/ sugar free jelly crystals*

6.4 Microbiological requirements

Jelly crystals shall comply with the microbiological limits given in Table **2** when tested in accordance with the methods given in Column **4** of the table.

TABLE 2 – Microbiological requirements for jelly crystals

Sl NO (1)	**Microorganism** (2)	**Limit** (3)	**Method of test** (4)
i)	Yeast and moulds, cfu per g, max.	$1x10^2$	**SLS 516 Part 2/ Section 2**
ii)	*Salmonella,* per 25 g	Absent	**SLS 516 Part 5**
iii)	*Escherichia coli,* MPN per g	Absent	**SLS 516 Part 12**
iv)	*Staphylococcus aureus,* per g	Absent	**SLS 516 Part 6/ Section 1**

7 CONTAMINANTS

7.1 Potentially toxic elements

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

TABLE 3 - Limits for potentially toxic elements

Sl No (1)	Potentially toxic element (2)	Limit (3)	Method of test (4)
i)	Arsenic as As, mg/ kg, max.	1.0	**AOAC 986.15/ AOAC 2013.06**
ii)	Lead as Pb, mg/ kg, max.	0.5	**AOAC 999.10/ AOAC 2013.06**
iii)	Cadmium as Cd, mg/ kg, max.	1.0	**AOAC 999.10/ AOAC 2013.06**

8 PACKAGING

The product shall be packaged in a clean, air-tight, moisture proof food grade package.

NOTE
These packages may be enclosed in a suitable container.

9 MARKING AND/ OR LABELLING

The following shall be marked and/ or labeled legibly and indelibly on each package:

a) Name of the product as “Jelly crystals” including the flavour and the type ;
b) Brand name or trade mark, if any;
c) Net mass in grams;
d) Name and address of the manufacturer;
e) Country of origin in case of imported products;
f) Batch or code number or a decipherable code marking;
g) Date of manufacture;
h) Date of expiry;
j) List of ingredients in descending order;
k) Permitted food additives name and INS number, if added ;
m) Directions for preparation;
n) The warning statement(s) as per the Food (Sweeteners) Regulations if applicable; and
p) The source of gelatin.

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 methods prescribed in the Appendix **B** to **D** of this Standard, **Section 2** of **Part 2**, **Part 5**, **Section 1** of **Part 6**, **Part 12** of **SLS 516**, **SLS 586** and Official Methods of Analysis, 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 package selected as in **A.6.1** shall be inspected for packaging and marking and/or labeling requirements.

12.2 Each package selected as in **A.6.2** shall be examined for requirements given in **6.2.1**, **6.2.2** and **6.2.3**.

12.3 A package tested as in **A.6.3** satisfies the relevant requirements given in **6.2.4**.and **6.2.5**.

12.4 Each package tested as in **A.6.4** satisfies the relevant microbiological requirements given in **6.4** and moisture content Sl No (i) in **6.3**.

12.5 The test results of the composite sample when tested as in **6.3 (**except for moisture**)** and **7.1** satisfies the relevant requirements.

APPENDIX A
SAMPLING

A.1 LOT

In any consignment, all the containers or packages of same size and type containing jelly crystals drawn from a single batch of manufacture of a supply shall constitute a lot.

A.2 GENERAL REQUIREMENTS OF SAMPLING

A.2.1 The sampling instrument shall be clean and dry. The product being sampled, the sampling instrument and the containers or packages for samples shall be protected from adventitious contamination.

A.2.2 To draw a representative sample, the contents of each container or package selected for sampling shall be mixed as thoroughly as possible by suitable means.

A.2.3 The samples shall be placed in clean, dry and air-tight glass or other suitable containers.

A.2.4 Each sample container or package shall be sealed air-tight after filling and marked with the necessary details of sampling, the date of sampling and other important particulars of the consignment.

A.3 SCALE OF SAMPLING

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

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

TABLE 4 - Scale of sampling

Number of packages in the lot (1)	**Number of packages to be selected** (2)
Up to 500	5
501 to 1 200	8
1 201 to 3 200	13
3 201 to 10 000	20
10 001 and above	30

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

A.4 PREPARATION OF SAMPLES

A.4.1 Preparation of samples for microbiological examination

Five containers or packages shall be selected from the containers or packages selected as in **A.3.2.** A **s**ufficient quantity of material shall be drawn from each container or package 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 obtained shall be transferred separately into sterile sample containers and marked with necessary details of sampling.

A.4.2 Preparation of the composite sample

Approximately equal quantities shall be drawn from each package selected as in **A.3.2** using an appropriate sampling instrument, mixed and reduced to get a composite sample of sufficient size and transferred to a moisture proof 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 given in Column **2** of Table **4**. 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 package selected as in **A.3.2** shall be inspected for packaging and marking and/ or labelling requirements.

A.6.2 Each package selectedas in **A.3.2** shall be examined for the requirements given in **6.2.1, 6.2.2** and **6.2.3**.

A.6.3 One package shall be selected from the packages selected as in **A.3.2** and tested for the requirements given in **6.2.4** and **6.2.5**.

A.6.4 Each of the remaining packages shall be individually tested for moisture content given in Sl No (i) of Table 1 and microbiology requirements as in **6.4**.

A.6.5 The composite sample shall be tested for the requirements given in **6.3** (except for moisture) and **7.1**.

APPENDIX B
DETERMINATION OF GEL STRENGTH

B.1 PROCEDURE

Dissolve the contents in a container according to the directions given by the manufacturer. Transfer 10 ml of the solution to a test tube having an internal diameter of approximately 12 mm and place the tube in an ice bath. The level of the solution shall be below the level of the ice and water. Place the bath containing the tube in a refrigerator and maintain it at 0°C for 6 hours. No movement of gel shall be observed when the tube is removed from the bath and inverted.

APPENDIX C
DETERMINATION OF TOTAL ASH

C.1 APPARATUS

C.1.1 *Platinum or silica dish*

C.1.2 *Furnace,* maintained at 550 ± 25 °C.

C.1.3 *Desiccator*

C.2 PROCEDURE

Weigh, to the nearest milligram, about 5 g of the sample in a tared platinum or silica dish (**C.1.1**). Heat over a low flame until all the organic matter has been charred. Complete ashing by placing the dish in the furnace (**C.1.2**). When all the carbon has been burnt cool the dish in a desiccator and weigh.

Repeat the process of heating, cooling and weighing at 30 minute intervals until the difference between two successive weighings does not exceed 1 mg. Record the lowest mass.

C.3 CALCULATION

$$Total\ \ ash\ \ per\ \ cent\ \ by\ \ mass = \frac{m_2 - m_0}{m_1 - m_0} \times 100$$

where,
m_0 is the mass, in g, of the empty dish:
m_1 is the mass, in g, of the sample with the dish; and
m_2 is the mass, in g, of the ash with the dish.

APPENDIX D
DETERMINATION OF ACIDITY (AS ANHYDROUS CITRIC ACID)

D.1 REAGENTS

D.1.1 *Standard Sodium hydroxide solution*, 0.1 mol/ l

D.1.2 *Phenolphthalein indicator solution*

Dissolve 0.5 g of Phenolphthalein 200 ml of 50 per cent ethyl alcohol (V/V).

D.2 PROCEDURE

Weigh, to the nearest milligram, about 5 g of the sample in a flask and dissolve in 150 ml of distilled water by placing in a water bath at 60 ℃. Cool to room temperature. Add 1 ml of phenolphthalein indicator solution (**D.1.2**) and titrate against the standard Sodium hydroxide solution (**D.1.1**). Use another portion of the sample diluted to the same proportion in a similar flask to observe the colour change at the endpoint.

For highly coloured jelly crystals the acidity should be titrated potentiometrically to pH 8.1.

D.3 CALCULATION

$$Acidity\,(as\ anhydrous\ citric\ acid),\ per\ cent\ by\ mass = \frac{6.404\ \ Vc}{m}$$

where,

V is the volume, in ml, of standard Sodium hydroxide solution required for the titration;
c is the concentration, in mol/ l, of the standard Sodium hydroxide solution; and
m is the mass, in g, of the sample taken for test.

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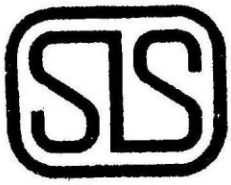
SLS CERTIFICATION MARK

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

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Technology.

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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