

SRI LANKA STANDARD 997 : 1993

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**SPECIFICATION FOR
CANNED MUSHROOMS**

SRI LANKA STANDARDS INSTITUTION

SPECIFICATION FOR CANNED MUSHROOMS

SLS 997 : 1993

Gr. 7

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SRI LANKA STANDARDS INSTITUTION

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Sri Lanka.

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This standard does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD SPECIFICATION FOR CANNED MUSHROOMS

FOREWORD

This standard was approved by the Sectoral Committee on Fruit and Vegetable Products, and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 1993-06-17.

During the formulation of this specification due consideration has been given to the relevant provisions made under the Sri Lanka Food Act No. 26 of 1980. Specific requirements given in this specification, wherever applicable, are in accordance with the relevant regulations. However, general provisions made under the Sri Lanka Food Act have not been included in this specification and therefore, the attention of the user of this specification is drawn to the general provisions made in the regulations framed under the Food Act.

Guidelines for the determination of a compliance of a lot with the requirements of this standard based on statistical sampling and inspection are given in Appendix A.

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 shall be the same as that of the specified value in this specification.

In the preparation of this standard, the valuable assistance derived from the following publications is gratefully acknowledged :

- CODEX STAN 55 : 1981 Canned mushrooms.
- MS 664 : 1980 Specification for canned mushrooms (*Agaricus*).

1 SCOPE

This specification prescribes the requirements and methods of test for canned mushrooms (*Agaricus* sp.).

2 REFERENCES

- SLS 102 Presentation of numerical values.
- SLS 428 Random sampling methods.
- SLS 467 Labelling of prepackaged foods.
- SLS 516 Microbiological test methods
Part 10 : Commercial sterility of low acid and acid canned foods.
- SLS 873 Code of practice for manufacture/canning of low-acid and acidified foods.

3 DEFINITIONS

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

3.1 canned mushrooms : The product prepared from fresh, edible and cultivated varieties of mushrooms of genus *Agaricus* (*Psalliota*), including *Agaricus bisporus*. After selection, trimming and cleaning, it is packed in a suitable liquid medium appropriate to the product, and sufficiently heat-processed before or after being sealed in a container to ensure preservation.

3.2 buttons : Whole mushrooms, with attached stems not exceeding 5-mm in length, measured from the bottom of the veil. Ten per cent of count of the units of buttons may exceed the stem length of 5-mm.

3.3 sliced buttons : Buttons cut into slices of 2-mm to 6-mm thickness, of which not less than 50 per cent are cut parallel to the axis of the mushrooms.

3.4 whole : Whole mushrooms, with attached stems cut to a length not exceeding the diameter of the cap, measured from the bottom of the veil. Ten per cent of count of the units of wholes may exceed the above stem length.

3.5 sliced or sliced whole : Mushrooms cut into slices of 2-mm to 8-mm thickness, of which not less than 50 per cent are cut parallel to the axis of the mushrooms.

3.6 randomly sliced : Mushrooms cut into slices of varying thickness and in which the slices may deviate materially from cuts approximately parallel to the axis of the mushroom.

3.7 quarters : Mushrooms cut into four approximately equal parts.

3.8 stems and pieces : Cut pieces of caps and stems of irregular sizes and shapes.

3.9 grilling : Selected open-veiled mushrooms not exceeding 40-mm in diameter, with attached stems not exceeding the diameter of the cap, measured from the bottom of the veil scar.

3.10 other optional styles : Other forms not specifically described in 3.2 to 3.9 above, such as diced or chopped.

4 TYPES

Canned mushrooms shall be of the following types :

White or cream; and
Brown

5 STYLES

Canned mushrooms shall be of the following styles;

- Buttons;
- Sliced buttons;
- Whole;
- Sliced or sliced whole;
- Randomly sliced;
- Quarters;
- Stems and pieces;
- Grilling; and other optional styles.

NOTE

It is recommended that only one style is packed in a container.

6 PACKING MEDIUM

6.1 Mushrooms shall be packed in one of the following media:

- a) Regular or Natural - in water, brine and/or juice exuding from the mushrooms;
- b) Butter or in butter sauce;
- c) Cream sauce;
- d) Sauce other than butter or cream;
- e) Vinegar;
- f) Oil; and
- g) Wine

6.2 The following ingredients shall be used as appropriate for the respective type of packing media:

- (a) Water, salt, spices, seasonings, soyabean sauce, vinegar, wine;
- (b) Sucrose, invert sugar syrup, dextrose, glucose syrup, dried glucose syrup;
- (c) Butter or other edible animal or vegetable fats or oils, including olive oil; milk, milk powder or cream (see Note);
- (d) Starches - natural (native), physically or enzymatically modified - only when butter or other edible animal or vegetable fats or oils are ingredients;
- (e) Wheat or corn flour.

NOTE

If butter is added, the amount of butter should be not less than 3 per cent (m/m) of the final product.

7 ADDITIVES

The canned mushrooms may contain the additives listed in Appendix B.

8 REQUIREMENTS

8.1 Processing

Canned mushrooms shall be processed, canned and stored under hygienic conditions in accordance with SLS 8/3.

8.2 Raw material

8.2.1 Canned mushrooms shall be prepared from mushrooms which are practically free from soil, sand, grit or any other extraneous matter.

8.2.2 The mushrooms shall also be free from spots, bruises and other forms of infestations, mechanical and pathological damages.

8.3 Finished product

8.3.1 Colour

8.3.1.1 The colour of canned mushrooms shall be characteristic of the variety of mushrooms used in canning. Canned mushrooms of special types and containing special permitted ingredients shall be considered of characteristic colour when there is no abnormal discolouration for the respective ingredients used.

8.3.1.2 The liquid medium in "Regular or Natural pack" shall be either clear or slightly turbid and yellow to light brown in colour.

8.3.2 Texture and appearance

8.3.2.1 The mushrooms in the "Regular or Natural pack" shall be firm and substantially intact.

8.3.2.2 Caps which show total or complete breakage of the veil shall not exceed 10 per cent by the count of the mushroom units in the styles of "Buttons" and "Whole" mushrooms.

8.3.2.3 Detached caps or stems shall not exceed 5 per cent by count of the mushroom units in the styles of "Buttons", "Whole" and "Grilling" mushrooms.

8.3.3 Flavour

8.3.3.1 Canned mushrooms shall have a characteristic taste and odour free from off flavours.

8.3.3.2 Canned mushrooms with special ingredients or sauces shall have the flavour characteristic of that imparted by the mushrooms and other substances used.

8.3.4 *Commercial sterility*

Canned mushrooms shall be tested for the commercial sterility as given in SLS 516 : Part 10.

8.3.5 *Drained mass*

8.3.5.1 Regular, vinegar, wine and oil packs

The drained mass of the canned mushrooms shall be not less than 53 per cent by the mass of the water capacity of the can when tested by the method given in Appendix C.

8.3.5.2 Sauce packs

The drained mushrooms portion, after washing off the sauce or liquid, shall be not less than 27.5 per cent of the total mass of the product when tested by the method given in Appendix C.

8.3.6 *Fill of container*

The container shall be well filled with mushrooms and packing medium. It shall occupy not less than 90 per cent of the water capacity of the container when tested by the method given in Appendix D.

9 PACKAGING AND MARKING

9.1 Packaging

Cans shall be made of lacquered tin plate, aluminium or other suitable metal which can be hermetically sealed. The cans shall be clean and free from rust and any discolouration.

9.2 Marking

9.2.1 Each can shall be legibly and indelibly marked or labelled with the following:

- a) Name of the product as "MUSHROOMS";
- b) Type and style of mushrooms with type of pack/packing media;
- c) Brand name or trade mark; if any;
- d) Net mass, in grams;
- e) Name and address of the manufacturer or distributor, including the country of origin;
- f) Batch or code number;
- g) Date of expiry;
- h) Drained mass; and
- j) List of ingredients.

9.2.2 Marking and labelling shall be in accordance with SLS 467.

NOTE

Attention is drawn to certification marking facilities offered by the Sri Lanka Standards Institution. See the inside back cover of the standard.

10 METHODS OF TEST

The tests shall be carried out as prescribed in SLS 516 : Part 10 and relevant Appendices of this specification.

**APPENDIX A
COMPLIANCE OF A LOT**

The sampling scheme given in this appendix should be applied where compliance of a lot to the requirements of this standard is to be assessed based on statistical sampling and inspection.

Where compliance with this standard is to be assured based on manufacturer's control systems coupled with type testing and check tests or any other procedure, appropriate schemes of sampling and inspection should be adopted.

A.1 LOT

In any consignment all cans of mushrooms of the same size, style and packing medium belonging to one batch of supply or manufacture shall constitute a lot.

A.2 SCALE OF SAMPLING

A.2.1 Samples shall be tested from each lot for ascertaining conformity to the requirements of this specification.

A.2.2 The number of cans to be selected from a lot shall be in accordance with Table 1.

TABLE 1 - Scale of sampling

Number of cans in the lot (1)	Number of cans to be selected (2)	Size of sub sample 1 (3)	Size of sub sample 2 (4)
Up to 280	8	3	5
281 to 500	9	4	5
501 to 1200	11	5	6
1201 to 3200	13	6	7
3201 to above	14	7	7

A.2.3 The cans shall be selected at random. In order to ensure randomness of selection random numbers as given in SLS 428 shall be used.

A.3 NUMBER OF TESTS

A.3.1 Each can selected as in A.2.2 shall be inspected for packaging and marking requirements.

A.3.2 Each can of sub sample 1 shall be individually tested for the fill of container, drained mass, texture and appearance in that order.

A.3.3 Each can of sub sample 2 shall be tested for the commercial sterility.

A.4 CRITERIA FOR CONFORMITY

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

A.4.1 Each can inspected as in A.3.1 satisfies the relevant requirements.

A.4.2 Each can tested as in A.3.2 and A.3.3 satisfies the relevant requirements.

APPENDIX B LIST OF FOOD ADDITIVES

FOOD ADDITIVE	MAXIMUM LIMIT
Ascorbic acid	Limited by GMP*
Citric acid	Limited by GMP*
Monosodium glutamate	Limited by GMP*
Caramel colours for use in sauces	Limited by GMP*
Calcium disodium ethylene diamine tetra acetate	200 mg/kg

* "GMP" standards for good manufacturing practice and requires that the minimum amount of the additive be used to produce the desired effect.

Vegetable gums

Gum arabic
Carrageenan
Furcellaran
Guar gum
Pectins
Alginates (calcium, potassium,
sodium, ammonium)
Propylene glycol alginate

Modified starches

1 per cent (m/m) of the
additive, singly or in
combination

Acid - treated starches
Alkali - treated starches
Bleached starches
Distarch phosphate
(Sodium trimetaphosphate treated)
Distarch phosphate, phosphated
Monostarch phosphate
Starch acetate
Starch, hydroxypropyl
Distarch, adipate, acetylated
Distarch glycerol hydroxypropyl
Oxidized starches
Distarch phosphate (Phosphorous
oxychloride treated)
Distarch phosphate, acetylated
Distarch glycerol, acetylated
Distarch glycerol

APPENDIX C
DETERMINATION OF DRAINED MASS

C.1 APPARATUS

C.1.1 *Test sieve*, having a nominal aperture size 2.36 mm conforming to SLS 124. (For all styles except mushrooms packed in sauce packs).

C.1.2 *Test sieve*, having a nominal aperture size, 300 μ m conforming to SLS 124.

C.2 PROCEDURE

C.2.1 For all styles except mushrooms packed in sauce

Weigh the clean and dry sieve (C.1.1) (m_0). Empty the contents of the can into the sieve taking care to distribute the mushrooms evenly. Incline the sieve at an angle without shifting the product to facilitate drainage. Drain the product for two minutes and then weigh the sieve with mushrooms (m_1).

Determine the water capacity of the can as follows :

Cut out the lid without removing or altering the height of the double seam. Wash the can with distilled water, dry and weigh (m_2). Fill the can with distilled water to a 4.8-mm vertical distance below the top level of the can and weigh (m_3). The difference in two masses is the water capacity of the can.

C.2.2 For mushrooms packed in sauce only

Weigh the clean and dry sieve (C.1.2) (m_0). Weigh the can with the contents (m_1). Open and wash the contents of the can into the sieve. Wash the contents of the sieve under running cold water, and then wash with running hot water until free from sauce. Spread the mushrooms evenly on the sieve. Incline the sieve at an angle without shifting the mushrooms to facilitate drainage. Drain the product for two minutes and then weigh the sieve and the mushrooms (m_2). Weigh the empty can (m_3).

C.3 CALCULATION

C.3.1 For all styles except mushrooms packed in sauce

$$\text{Drained mass, per cent (water capacity of the can)} = \frac{m_1 - m_0}{m_3 - m_2} \times 100$$

where,

- m_0 is the mass, in g, of the empty sieve;
- m_1 is the mass, in g, of the sieve and the mushrooms;
- m_2 is the mass, in g, of the empty can; and
- m_3 is the mass, in g, of the can filled with water.

C.3.2 For mushrooms packed in sauce

$$\text{Drained mass, per cent by net mass} = \frac{m_2 - m_0}{m_1 - m_3} \times 100$$

where,

- m_0 is the mass, in g, of the empty sieve;
- m_1 is the mass, in g, of the can with the contents;
- m_2 is the mass, in g, of the sieve with the mushrooms; and
- m_3 is the mass, in g, of the empty can.

**APPENDIX D
DETERMINATION OF FILL OF CONTAINER**

D.1 PROCEDURE

Select undamaged cans in all aspects. Carefully open the can and note the level of the contents and wash, dry and weigh the empty can (m_0).

Fill the can with distilled water to a distance of 4.8 mm below the top level of the can, if the can has a double seam. (For other cans, fill up to the top of the can). Weigh the filled can (m_1).

Draw off water from the filled can to the level of the contents. Weigh the can and the remaining water (m_2).

D.2 CALCULATION

$$\text{Fill of container per cent by mass} = \frac{m_2 - m_0}{m_1 - m_0} \times 100$$

where,

m_0 is the mass, in g, of the empty can;

m_1 is the mass, in g, of the can filled with water; and

m_2 is the mass, in g, of the can with the remaining water.

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.



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 Science & 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.