SRI LANKA STANDARD 998 : 1993

UDC 634 . 392 : 664 . 036 . 58 : 664 . 854

SPECIFICATION FOR

# CANNED JAKFRUIT (RIPE)

SRI LANKA STANDARDS INSTITUTION

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SLS 998 : 1993

Gr.6



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

# SRI LANKA STANDARD
# SPECIFICATION FOR CANNED JAKFRUIT (RIPE)

## 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 publication is gratefully acknowledged :

MS 884 : 1984 Specification for canned jakfruit.

## 1 SCOPE

This specification prescribes the requirements and methods of test for canned jakfruit (ripe) *(Artocarpus heterophyllus* Lam.).

## 2 REFERENCES

SLS 102 Presentation of numerical values
SLS 124 Test sieves.
SLS 191 White sugar.
SLS 467 Labelling of prepackaged foods
SLS 428 Random sampling methods
SLS 614 Potable water
SLS 516 Microbiological test methods
Part 10 : Commercial sterility of low acid and acid canned foods
SLS 873 Manufacture/canning of low-acid and acidified low-acid foods.

## 3 DEFINITIONS

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

**3.1 canned jakfruit** : Product prepared from clean, fresh and ripe fruits obtained from the plant *Artocarpus heterophyllus* Lam. by removing the skin, fibres (unfertilized flowers) and seeds and canned.

**3.2 can** : A container made of tinplate or aluminium or other suitable material which can be hermetically sealed

**3.3 drained mass** : The mass of the contents of container after draining the liquid portion.

**3.4 blemished fruit pieces** : Processed fruit pieces affected by discolouration or other abnormalities which are easily noticeable, on visual examination.

## 4 STYLE

The jakfruit shall be longitudinally cut into following styles :

Halves; and
Slices

*NOTE*

*It is recommended that one style is packed in a can.*

## 5 PACKING MEDIA

The following packing media shall be used :

Water; and
Sugar solution.

## 6 INGREDIENTS AND ADDITIVES

### 6.1 Raw material

The jakfruit shall be harvested at the correct stage of maturity.

Jakfruit shall be ripe, clean, and fit for human consumption. It shall also be free from diseases, insect damages and any signs of spoilage.

6.2 **Nutritive sweetners**

a) White sugar, conforming to SLS 191
b) Invert sugar syrup
c) Dextrose, hydrated or anhydrous
d) Liquid glucose
e) Spray-dried glucose syrup
f) Fructose
g) Fructose syrup.

6.3 **Non-nutritive sweetners**

Permitted synthetic sweetners shall be used for dietetic packs.

6.4 **Acidulants**

a) Citric acid
b) Tartaric acid
c) Malic acid
d) Ascorbic acid

6.5 **Potable water**, conforming to SLS 614.

## 7 REQUIREMENTS

### 7.1 Processing

The canned jakfruit shall be processed, packed, transported and stored as prescribed in SLS 873.

### 7.2 Finished product

#### 7.2.1 *Colour*

The canned jakfruit shall have the typical colour of the fruit, which is yellow to orange.

#### 7.2.2 *Flavour*

The canned product shall have the normal flavour and odour characteristic of jakfruit. It shall be free from objectionable flavours and odours.

#### 7.2.3 *Texture*

The canned jakfruit shall be reasonably firm and not mushy or woody.

7.2.3 *Defects*

The canned jakfruit shall be free from defects within the limits given in Table 1

**TABLE 1 - Defects and allowances**

| Sl No. (1) | Defect (2) | Maximum limit (3) |
|---|---|---|
| i. | Blemished fruit pieces | 2 pieces / can |
| ii. | Peel, seed, seed material and extraneous vegetable matter | 5 g/500 g of total content |

7.2.4 *Fill of container*

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

7.2.5 *Drained mass*

The drained mass of canned jakfruit shall be not less than 50 per cent of the net mass when tested by the method given in Appendix C.

7.2.6 *Commercial sterility*

The canned jakfruit shall be tested for the commercial sterility as given in SLS 516 : Part 10.

7.2.7 *Packing media*

The covering liquid shall be sugar syrup or water. Where products are packed in syrup the brix value of the syrup at the time of cut-out shall be in accordance with Column 3 of Table 2 when tested by the method given in Column 4 of the table.

**TABLE 2 - Brix value of syrup**

| Sl. No. (1) | Type of syrup (2) | Brix value (3) | Method of test (4) |
|---|---|---|---|
| i. | Extra heavy | 22° to 30° | Appendix D |
| ii. | Heavy | 18° to 21° | |
| iii. | Light | 14° to 17° | |
| iv. | Extra light | 10° to 13° | |

## 8 PACKAGING AND MARKING

### 8.1 Packaging

The canned jakfruit shall be packed in suitable clean containers which are hermetically sealed. The container shall not alter the flavour, odour or appearance of the product. The container shall show no evidence of corrosion, leakage, bloating, denting, soft swells or hard swells.

### 8.2 Marking

8.2.1 The following information shall be marked or labelled legibly and indelibly on each container :

a) Name of the product, as "JAKFRUIT (RIPE)";
b) The style of presentation (see 4);
c) A description of the packing medium in close proximity to the product (see 7.2.7);
d) Brand name or trade name;
e) Net mass, in grams or kilograms, as applicable;
f) Name and address of the manufacturer or distributor, including the country of origin.
g) Batch or code number;
h) Date of expiry;
j) Minimum drained mass; and
k) List of ingredients.

8.2.2 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 this standard.*

## 9 METHODS OF TEST

Tests shall be carried out as prescribed in SLS 516 : Part 10 and Appendices B to D of this specification.

## APPENDIX A
## COMPLIANCE OF A LOT

This sampling scheme 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 consignmet all cans of jakfruit of the same size, style and type 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 its 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 3.

**TABLE 3 - 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 and 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 requirements, fill of container,brix value of the syrup, drained mass, finished product and defects 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/tested as in A.3.1, A.3.2 and A.3.3 satisfies the relevant requirements.

## APPENDIX B
## DETERMINATION OF FILL OF CONTAINER

### B.1 PROCEDURE

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

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 ($m_2$).

### B.2 CALCULATION

$$\text{Fill of container per cent (water capacity of the can)} = \frac{m_2 - m_o}{m_1 - m_o} \times 100$$

where,

$m_o$ 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.

## APPENDIX C
## DETERMINATION OF DRAINED MASS

### C.1 APPARATUS

C.1.1 *Test sieve,* having a nominal aperture size of 2.0 mm, conforming to SLS 124.

### C.2 PROCEDURE

C.2.1 Carefully weigh a clean and dry sieve ($m_o$). Weigh the can and the contents ($m_1$). Empty the contents of the can into the sieve taking care to distribute the fruits evenly. Without shifting the product incline the sieve at an angle of approximately 17° to 20° to facilitate drainage. Drain the product for two minutes and weigh the sieve and the product($m_2$). Weigh the empty can ($m_3$).

### C.3 CALCULATION

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

where,

$m_o$ is the mass, in g, of the sieve;
$m_1$ is the mass, in g, of the can with the contents;
$m_2$ is the mass, in g, of the product with the sieve; and
$m_3$ is the mass, in g, of the empty can.

## APPENDIX D
## DETERMINATION OF SYRUP DENSITY

The Brix hydrometer method could be used. The Abbe refractometer method could be used in case of a dispute as the reference method.

### D.1 APPARATUS

D.1.1 *Brix hydrometer,* covering the ranges to be measured and calibrated at 0.1° intervals.

D.1.2 *Abbe refractometer,* fitted with a Brix (sugar) scale.

D.1.3 *Thermometer,* 0 °C to 100 °C.

D.1.4 *Glass cylinder,* the diameter should be at least 12-mm larger than the hydrometer bulb.

D.2 **PROCEDURE**

D.2.1 *Brix hydrometer method*

Use the syrup from Appendix C. Mix the sample thoroughly. Pour into the glass cylinder and allow the sample to stand until all the air bubbles escape. Lower the hydrometer slowly into the sample taking care that the hydrometer does not touch the side of the glass cylinder. Take the reading to the nearest 0.1° and measure the temperature of the samples at which the reading is taken. Make temperature corrections to this reading, for temperatures above 20 °C using Table 4.

**TABLE 4 - Temperature correction table for sugar refractometer (standard at 20 °C) [add to observed Brix (sugar) readings]**

| Temp. °C | Observed percentage Brix (sugar) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0 | 5 | 10 | 15 | 20 | 25 | 30 |
| 21 | 0.04 | 0.05 | 0.06 | 0.06 | 0.06 | 0.07 | 0.07 |
| 22 | 0.10 | 0.10 | 0.11 | 0.12 | 0.12 | 0.13 | 0.14 |
| 23 | 0.16 | 0.16 | 0.17 | 0.17 | 0.19 | 0.20 | 0.21 |
| 24 | 0.21 | 0.22 | 0.23 | 0.24 | 0.26 | 0.27 | 0.28 |
| 25 | 0.27 | 0.28 | 0.30 | 0.31 | 0.32 | 0.34 | 0.35 |
| 26 | 0.33 | 0.34 | 0.36 | 0.37 | 0.40 | 0.40 | 0.42 |
| 27 | 0.40 | 0.41 | 0.42 | 0.44 | 0.46 | 0.48 | 0.50 |
| 28 | 0.46 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 | 0.58 |
| 29 | 0.54 | 0.55 | 0.56 | 0.59 | 0.61 | 0.63 | 0.66 |
| 30 | 0.61 | 0.62 | 0.63 | 0.66 | 0.68 | 0.71 | 0.73 |
| 35 | 0.99 | 1.01 | 1.02 | 1.06 | 1.10 | 1.13 | 1.16 |
| 40 | 1.42 | 1.45 | 1.47 | 1.51 | 1.54 | 1.57 | 1.60 |
| 45 | 1.91 | 1.94 | 1.96 | 2.00 | 2.03 | 2.05 | 2.07 |
| 50 | 2.46 | 2.48 | 2.50 | 2.53 | 2.56 | 2.57 | 2.58 |
| 55 | 3.05 | 3.07 | 3.09 | 3.12 | 3.12 | 3.12 | 3.12 |
| 60 | 3.69 | 3.72 | 3.73 | 3.73 | 3.72 | 3.70 | 3.67 |

D.2.3 *Abbe refractometer method*

Use the thoroughly mixed sample and take the brix reading on the Abbe refractometer. Circulate water through the refractometer to obtain a constant temperature at the same time the Brix reading is taken. Make temperature corrections to this reading for temperatures above 20 °C using Table 4.

## *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.*

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Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.