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**SRI LANKA STANDARD 418 : 1977**

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# SPECIFICATION FOR INDUSTRIAL TAPIOCA FLOUR

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**BUREAU OF CEYLON STANDARDS**

# SPECIFICATION FOR INDUSTRIAL TAPIOCA FLOUR

SLS 418 : 1977

Gr. 3



**BUREAU OF CEYLON STANDARDS**
53, Dharmapala Mawatha,
COLOMBO 3.

# SRI LANKA STANDARD SPECIFICATION FOR INDUSTRIAL TAPIOCA FLOUR

## FOREWORD

This Sri Lanka Standard Specification has been prepared by the Drafting Committee of the Bureau on Tapioca Starch. It was approved by the Textiles Divisional Committee of the Bureau of Ceylon Standards and was authorised for adoption and publication by the Council of the Bureau on 1977-05-11.

Tapioca flour is manufactured from the tuberous root of the tapioca plant, by a dry milling process where dried chips are ground and sieved to give flour.

This is different from the preparation of starch which is a wet disintegration process, (rasping and blending), that releases the starch grains from the cells. The starch is then separated from the cellular material by sieving resulting in the starch milk, from which the starch is prepared. In the latter instance the product is nearly pure starch while in the former case cell wall material, proteins and other cellular components are also present.

It is expected that this standard for tapioca flour would be of use especially to those in the textile industry.

For the purpose of determining particle size, Ceylon Standard sieves conforming to CS 124 : 1971* are specified. Where these sieves are not available other equivalent standard sieves as judged by the aperture may be used.

All standard values given in this standard specification are in SI units.

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 observation shall be rounded off in accordance with CS 102 : 1971**. The number of figures to be retained in the rounded off value shall be the same as that of the specified value in this standard.

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* CS 124 : 1971 - Test sieves.

** CS 102 : 1971 - Presentation of Numerical Values.

This standard makes reference to the following standards :

CS 124 : 1971 — Ceylon standard Specification for Test Sieves.
CS 102 : 1971 — Ceylon Standard for Presentation of Numerical Values.
SLS 417 : 1977 — Sri Lanka Standard Specification for Industrial Tapioca Starch.

In the preparation of this standard, assistance derived from related publications of the Indian Standards Institution is gratefully acknowledged.

## 1. SCOPE

This standard prescribes requirements of tapioca flour for use in industries. Methods of test for various characteristics and sampling of the flour are also specified.

## 2. IDENTIFICATION

**2.1** When the material is boiled with 15 times its own mass of water and cooled, the resulting translucent viscous fluid or jelly like most starch containing material shall give a deep blue colour with iodine solution and the colour shall disappear on warming and reappear on cooling.

**2.2** When tested by the method prescribed in Clause A—2 in SLS 417 : 1977* the material shall show the characteristic shape as illustrated in Figure 1, Photomicrograph of tapioca flour.

**Note :** Tapioca flour granules are round with a flat surface on one side that contains a conical pit extending to the hilum. The hilum is well defined. Some granules appear practically circular. In polarized light, a well defined cross is observed.

## 3. GENERAL REQUIREMENTS

**3.1** The material shall be in the form of a light cream coloured powder and shall be free from black spots, dirt and other impurities.

It shall also be free from insect or fungus infestation.

* SLS 417 : 1977 - Industrial Tapioca Starch.

## 4. SPECIFIC REQUIREMENTS

**4.1** The material shall conform to the requirements given in Table 1 when tested by the relevant methods of test specified in Column 4 of the table.

**Table 1—Requirements for Tapioca Flour**

| Serial No. (1) | Characteristic (2) | Requirement (3) | Method of test Ref. to Cl. No. of SLS 417 : 1977* (4) |
|---|---|---|---|
| (i) | Particle Size : residue, per cent by mass, on 150 μm CS Sieve, max. | 1·0 | A—3 |
| (ii) | Moisture content, per cent by mass, max. | 14·0 | A—4 |
| (iii) | Starch content, per cent by mass (on oven-dry basis), min. | 82·0 | A—5 |
| (iv) | Ash content, per cent by mass, (on oven-dry basis), max. | 2·0 | A—6 |
| (v) | Ether extract, per cent by mass, (on oven-dry basis), max. | 0·4 | A—8 |
| (vi) | Free acidity expressed as ml of 0·1 N NaOH per 100g (on oven-dry basis), max. | 100 | A—9 |
| (vii) | pH of aqueous extract | 4·8 to 7·0 | A—10 |
| (viii) | Viscosity of 2% paste in $m^2/s$ at 60°C (in seconds, in Redwood No. 1 Viscometer) (on oven-dry basis), min. | $5·5 \times 10^{-6}$ (40·0) | A—11 |
| (ix) | Cold water solubles, per cent by mass, (on oven-dry basis) max. | 9·5 | A—12 |
| (x) | Crude fibre, per cent by mass, (on oven-dry basis) max. | 2·5 | A—13 |

## 5. PACKAGING

**5.1** The material shall be packed in entirely enclosed packages, wrapped in suitable packaging materials which do not adversely affect the flour and which protects it from contamination.

## 6. MARKING

**6.1** All bags and packages shall be marked with the following :

(a) The name of the material,
(b) Manufacturer's name and address and/or registered trade-mark, if any,
(c) Net mass of the contents,
(d) Code or batch number of packaging, and
(e) The words ' Made in Sri Lanka '.

## 7. SAMPLING

**7.1** **Lot**—In any consignment all the packages containing material of approximately uniform quality and belonging to the same batch of manufacture shall constitute a lot.

**7.2** Test sample, to determine conformity of a lot of the material to this standard, shall be selected so as to be representative of the lot.

**Note :** For the purpose of moisture determination, the test sample should be directly collected in an air-tight weighing bottle.

**7.3** Ordinarily, the number of packages selected for the purpose of drawing a test sample shall not be less than the cube root of the total number of packages in the lot. Table 2 is recommended to be used for this purpose. The packages shall be selected at random from the lot.

**7.4** In case of dispute, as to the quality of the material for the purpose of acceptance on the basis of the results obtained, every package in the disputed lot shall be sampled (see Clause 7·5) for the purpose of drawing a test sample.

Table 2—Minimum number of packages to be selected from a lot ( Clause 7·3 )

| No. of packages in a lot | | | No. of packages to be taken |
|---|---|---|---|
| (1) | | | (2) |
| 2 | to | 8 | 2 |
| 9 | to | 27 | 3 |
| 28 | to | 64 | 4 |
| 65 | to | 125 | 5 |
| 126 | to | 216 | 6 |
| 217 | to | 343 | 7 |
| 344 | to | 512 | 8 |
| 513 | to | 729 | 9 |
| 730 | to | 1000 | 10 |

7.5 In drawing a test sample, three scoopfuls (see Fig. 2) of the material, one from the top, one from the middle and one from the bottom of every package selected for the purpose (see Clauses 7·3 and 7·4) shall be taken till about 2 kg (or more) of the material is collected from the whole lot. This shall constitute the test sample. If necessary the process shall be repeated to make up the test sample to 2 kg (or more). The test sample so obtained shall be mixed thoroughly and placed in a moisture-proof container (see note under Clause 7·2).

## 8. CRITERIA FOR CONFORMITY

The lot shall be declared as conforming to the requirements of this standard if the test sample satisfies all the requirements given in Clauses 3 and 4 and also identification given in Clause 2.

## *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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