SRI LANKA STANDARD 420: 2019 UDC 664.69

SPECIFICATION FOR PASTA PRODUCTS (Second Revision)

SRI LANKA STANDARDS INSTITUTION

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SLS 420: 2019

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#### Sri Lanka Standard SPECIFICATION FOR PASTA PRODUCTS (Second Revision)

## 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 2019-03-07.

Macaroni, spaghetti, vermicelli, noodles etc. belong to a class of products generally known as pasta products. The Italians call them "Pasta Alimentare" (Alimentary Paste). These products have gained a fast popularity in catering and home uses. The manufacturing process for pasta products and noodles consists of the dough preparation from wheat flour and cold or lukewarm water, kneading process and extrusion through the extrusion press fitted with a die for the desired shape. The extruded products are cut to a given length and then dried to definite moisture content under controlled conditions of temperature and humidity. The dried product is suitably packaged depending on the market requirements.

This Standard does not apply to instant noodles, which is covered in **SLS 1534** Specification for instant noodles.

This Standard was first published in 1977 and revised in 1989. Since then a broad range of varieties of pasta products is being marketed in the country. In this second revision, product types are updated accordingly. In addition to that, some requirements of the product and limits for potentially toxic elements and mycotoxins are introduced 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 publications of the Bureau of Indian Standards, Codex Alimentarius Commission and the United States Department of Agriculture are gratefully acknowledged.

## 1 SCOPE

**1.1** This Standard prescribes the requirements, methods of sampling and tests for pasta products.

- **1.2** This Standard does not cover instant noodles.
- **1.3** Fresh noodles are excluded from this Standard.

# 2 **REFERENCES**

- SLS 80 Edible iodized salt (Powdered form)
- SLS 102 Rules for rounding off numerical values
- SLS 124 Test sieves
- SLS 143 Code of practice for general principles of food hygiene
- SLS 144 Wheat flour
- SLS 181 Raw and processed milk
- SLS 428 Random sampling methods
- SLS 467 Code of practice for labeling of prepackaged foods
- SLS 614 Potable water
- SLS 731 Milk powder
- SLS 913 Rice flour
- SLS 928 Kurakkan flour
- SLS 962 Methods of test for aflatoxin in foods. Part 1 Determination of aflatoxin B<sub>1</sub>, and the total content of aflatoxins B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub> in cereals, nuts and derived products High performance liquid chromatographic method
- SLS 1011 Soya Flour
- SLS 1534 Instant noodles

SLS ISO 7304-1 Durum wheat semolina and alimentary pasta – Estimation of cooking quality of alimentary pasta by sensory analysis- Part 1: Reference method

Official methods of Analysis, Association of Official Analytical Chemists (AOAC) 20<sup>th</sup> edition, 2016

# **3 DEFINITION**

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

**3.1 pasta products:** A generic term for such food as noodles, macaroni, spaghetti, lasagne and vermicelli made from wheat semolina or durum wheat semolina or wheat flour and water with or without other optional ingredients, and then extruded through an extrusion press fitted with a die of the desired size or shaped through sheeting and slitting. Partially dried in hot air, then completely dried more slowly at a lower temperature.

# 4 TYPES

Pasta products shall be of following types:

**4.1 Noodles**: The product shall be in the form of solid rods of minimum length of 200 mm and maximum diameter of 2.0 mm or ribbons/bars of maximum width of 15 mm and thickness ranging from 0.7 mm to 2.5 mm.

**4.2** Folded noodles: The product shall be in the form of folded ribbons of thickness ranging from 0.7 mm to 2.0 mm.

# 4.3 Macaroni:

**4.3.1** *Long macaroni*: It shall be in the form of tubes of minimum length of 250 mm. Outer diameter of the tube shall be between 2.5 mm to 7.0 mm and the wall thickness shall be 0.8 mm to 1.5 mm or ribbons of minimum length 50 mm and thickness ranging from 0.8 mm to 2.5 mm.

**4.3.2** *Short–cut macaroni*: It shall be products of various but defined forms such as shells, stars, squares, spirals etc.

**4.4 Spaghetti**: The product shall be in the form of solid rods of a minimum length of 250 mm and minimum diameter of 1.6 mm.

**4.5 Lasagne sheet**: The product shall be square, rectangular or fancy shaped sheets.

**4.6** Vermicelli: The product shall be in the form of solid rods of minimum length of 200 mm and of diameter between 0.5 mm to 1.2 mm.

**4.7 Folded vermicelli**: The product shall be in the form of folded rods of diameter between 0.5 mm to 1.2 mm.

# 5 INGREDIENTS

All ingredients used in the preparation of the product shall be clean, wholesome and free from evidence of insect and rodent infestation and other extraneous matter. In addition, ingredients used shall not contain any substance in such amounts that may present a hazard to human health.

## 5.1. Basic ingredients

Following ingredients shall be used in the preparation of pasta products:

- 5.1.1 *Wheat flour,* conforming to SLS 144 (not less than 70 per cent by mass)
- **5.1.2** *Durum wheat semolina*
- 5.1.3 Wheat semolina and
- **5.1.4** *Potable water*, conforming to **SLS 614**

## 5.2 **Optional ingredients**

In addition to the basic ingredients specified under Clause **5.1** the following ingredients may also be added to the dough.

- **5.2.1** *Edible flours*
- 5.2.1.1 Kurakkan flour, conforming to SLS 928
- 5.2.1.2 Soya flour, conforming to SLS 1011
- **5.2.1.3** Edible Tapioca flour
- 5.2.1.4 Maize flour
- 5.2.1.5 Sorghum flour
- 5.2.1.6 Rice flour, conforming to SLS 913
- **5.2.1.7** Other edible flours of cereals, legumes or pulses

- 5.2.2 *Edible starches*
- 5.2.3 Eggs or egg powder
- 5.2.4 *Milk*, conforming to SLS 181, SLS 731
- 5.2.5 Food grade salt (Powdered form), conforming to SLS 80
- **5.2.6** *Spices, herbs and condiments*
- 5.2.7 *Edible oils*, conforming to relevant Sri Lanka Standard Specifications
- **5.2.3** *Food additives*
- 5.2.3.1 Gluten
- **5.2.3.2** Permitted colouring substances
- 5.2.3.3 Vitamins and minerals
- **5.2.4**. *Separate sachet*(s) may contain following ingredients
- **5.2.4.1** Fruits and vegetables (prepared, dehydrated or pulp)
- **5.2.4.2** Legumes, nuts, and other edible food ingredients
- 5.2.4.3 Edible iodized salt (Powdered form), conforming to SLS 80
- 5.2.4.4 Maltodextrin
- 5.2.4.5 Spices, herbs and condiments
- 5.2.4.6 Yeast extract
- **5.2.4.7** Sauces
- 5.2.4.8 Coconut milk powder
- 5.2.4.9 Cheese powder
- 5.2.4.10 Milk solids
- **5.2.4.11** Whey powder
- 5.2.4.12 Caramel powder
- 5.2.4.13 Edible oils conforming to relevant Sri Lanka Standards
- 5.2.4.14 Food additives
- a) Permitted flavouring substances
- b) Permitted flavour enhancers
- 5.2.2.15 Any other edible and permitted food ingredients

# 6 **REQUIREMENTS**

## 6.1 Hygiene

The products shall be processed, packaged, stored and distributed under hygienic conditions as prescribed in **SLS 143**.

## 6.2 General

The products shall be free from moulds, insect infestation, impurities and any other foreign matter. It shall be free from any evidence of staleness, bitterness and from any other objectionable flavour and odour. The product shall not contain more than 10 per cent of broken and misshapen units.

## 6.3 Cooking time

The cooking time shall be as follows when determined as given in Clause 11.2

## 6.3.1 Noodles and vermicelli - within 7 minutes; and

## **6.3.2** *Macaroni, spaghetti and lasagne sheet* – within 12 minutes.

# 6.4 Cooked product quality

The cooked pasta products must not break up during cooking and must not adhere in a mass that cannot be separated when tested in accordance with **SLS ISO 7304-1**.

## 6.5 Other Requirements

The product shall comply with the requirements given in Table 1 when tested in accordance with the methods prescribed in Column 4 of the table.

Sl	Characteristic	Requirement	Method of test
No		_	
(1)	(2)	(3)	(4)
i)	Moisture, per cent by mass, max.	12.0	Appendix <b>B</b>
ii)	Total ash*, per cent by mass, on dry	1.0	Appendix C
	basis, max.		
iii)	Acid insoluble ash**, per cent by	0.3	Appendix <b>D</b>
	mass, on dry basis, max.		
iv)	Total protein, per cent by mass, on	9.0	Appendix <b>E</b>
	dry basis***, min.		
v)	Cooking test: Total solids in gruel,	10	Appendix <b>F</b>
	per cent by mass, max.		

 TABLE 1 – Requirements for pasta products

\*If salt is added, total ash per cent by mass (on dry basis) shall not exceed 1.5. In case of products with composite flours and mineral fortified products the total ash per cent by mass (on dry basis) shall not exceed 4.0

\*\*For products manufactured with whole meal wheat flour, acid insoluble ash per cent by mass (on dry basis) shall not exceed 2.0

\*\*\* For products with composite flours total protein per cent by mass (on dry basis) shall not be less than 7.0. If product contained egg or soya, the protein content could be higher.

# 7 CONTAMINANTS

# 7.1 **Potentially toxic elements**

The product and contents in sachets shall not exceed the limits of potentially toxic elements given in Table 2, when tested in accordance with the methods given in Column 5 of the table.

SI	Potentially toxic element	Requir	Method of test	
No		Pasta	Sachet	Method of test
(1)	(2)	(3)	(4)	(5)
i)	Arsenic as As, mg/ kg, max.	0.1	1.0	AOAC 986.15
ii)	Lead as Pb, mg/ kg, max.	0.2	2.0	AOAC 999.10
iii)	Cadmium as Cd, mg/ kg, max.	0.1	1.0	AOAC 999.10

## TABLE 2 – Limits for potentially toxic elements

## 7.2 Mycotoxins

The product shall not exceed the limits for mycotoxins given in Table 3, when tested in accordance with the methods given in Column 4 of the table.

Sl No	Mycotoxin	Requirement	Method of test
(1)	(2)	(3)	(4)
i)	Total aflatoxins, µg/ kg (max).	4	SLS 962
ii)	Aflatoxins $B_1$ , $\mu g/ kg$ (max).	2	SLS 962

**TABLE 3 – Limits for mycotoxins** 

# 8 PACKAGING

The product shall be packaged in food grade containers/ packages with barrier properties for moisture which will safeguard the hygienic, nutritional and organoleptic qualities of the product. The containers including the packaging material shall be made of substances which are safe and suitable for intended use and shall not impart any toxic substances or undesirable flavours to the product.

# 9 MARKING AND/OR LABELLING

9.1 The following shall be marked legibly and indelibly on each package:

- a) Name of the product including the type (*see* Note);
- b) Brand name or trade mark;
- c) Net mass, in g or kg;
- d) Name and address of the manufacturer and packer/distributor in Sri Lanka;
- e) Country of origin, in case of imported products;
- f) Batch number or code number or a decipherable code marking;
- g) Date of manufacture;
- h) Date of expiry;
- j) List of ingredients in descending order of their proportions;
- k) Any permitted food additive's name and INS number if added; and
- m) Directions for preparation, including cooking time.

# NOTE

If the product is labeled as Kurakkan noodles, Soya noodles, Kurakkan or Soya content of the product should be not less than 5 per cent, and in the case of Egg noodles, dry egg solids content, on dry basis, should be not less than 5 per cent.

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

# 10 SAMPLING

Representative samples of the product for ascertaining conformity to the requirements of this Standard shall be drawn as prescribed in Appendix **A**.

## **11 METHODS OF TEST**

11.1 Product shall be tested for ascertaining conformity of the material to the requirements of this Standard by the methods of test given in **Part 1** of **SLS ISO 7304** and **SLS 962**, Appendices **B**, **C**, **D**, **E** and **F** of this Standard and Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC), 20<sup>th</sup> Edition, 2016.

**11.2** Place 25 g of the product in 250 ml of boiling water maintained over suitable heating device having a medium rate of heating. Take a portion of the product at the end of every minute and check whether the product is sufficiently cooked.

# 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 inspected as in **A.4.1** satisfies the packaging, marking and/or labelling requirements.

12.2 Each package examined as in A.4.2 satisfies the relevant requirements given in 6.2.

**12.3** Each sample tested as in **A.4.3** satisfy the relevant requirements given in i), ii), iii) and v) of Clause **6.5**.

The values of the expression  $\overline{x} + 1.1s$  (*see* Notes) calculated using the test results on moisture content, total ash content, acid insoluble ash content and total solids in gruel are less than the relevant specification limits.

# NOTES

1. Mean  $(\bar{x}) =$  The sum of values of the observations divided by the number of observations.

- 2. Standard deviation (s) = The positive square root of the quotient obtained by dividing the sum of squares of the deviations of the observations from their mean by one less than the number of observations.
- 12.4 The test results on composite sample when tested as in A.4.4 satisfy the relevant requirements given in 6.3, 6.4, Serial Number iv) of 6.5, 7.1 and 7.2.

#### APPENDIX A SAMPLING

# A.1 LOT

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

## A.2 GENERAL REQUIREMENTS OF SAMPLING

In drawing, preparing, sorting and handling samples, 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 Samples shall be protected against adventitious contamination.

**A.2.3** The samples shall be placed in clean and dry containers. The size of the sample containers shall be of such size that they are almost completely filled by the sample.

**A.2.4** The sample containers shall be sealed air-tight after filling and marked with the necessary details of sampling.

A.2.5 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the room temperature.

## A.3 SCALE OF SAMPLING

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

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

Number of packages in the lot (1)		0	Number of packages in the lot to be selected (2)	
Up	to	150	4	
151	to	500	6	
501	to	3200	9	
3201	to	5000	12	
5001	and	above	16	

**TABLE 4 - Scale of sampling** 

A.3.3 The packages 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 package selected as in **A.3.2** shall be inspected for packaging and marking and/or labeling requirements.

A.4.2 Each package selected as in A.3.2 shall be examined for the requirements given in 6.2.

A.4.3 Each package selected as in A.3.2 shall be tested for moisture, total ash, acid insoluble ash and total solids in gruel.

**A.4.4** A sufficient quantity of material shall be drawn from each package selected as in **A.3.2** and mixed to form a composite sample.

The composite sample thus obtained shall be tested for cooking time, cooked product quality, total protein content, potentially toxic elements and mycotoxins include in sachet(s) where applicable.

#### NOTE

Potentially toxic elements shall be tested separately for flavor sachet(s) and pasta products.

## APPENDIX B DETERMINATION OF MOISTURE

## **B.1** APPARATUS

**B.1.1 Desiccator** 

B.1.2 Dish, with lid porcelain, silica or Aluminium

**B.1.3 Drying oven**, capable of being controlled at  $105 \pm 2$  <sup>0</sup>C.

#### **B.1.4** Mortar and pestle

B.1.5 Sieve, 425µm conforming to SLS 124.

## **B.2 PROCEDURE**

**B.2.1** Grind about 30 g of the material in a mortar with a pestle so that at least 90 per cent passes through the sieve (**B.1.5**). Transfer the prepared sample to a well-stoppered glass bottle.

**B.2.2** Weigh, to the nearest 0.001 g, about 5 g of the prepared sample in a suitable dish (**B.1.2**), previously dried in a drying-oven and weighed. Place the dish in a drying-oven maintained at  $105 \pm 2$  <sup>0</sup>C for five hours. Cool the dish in a desiccator and weigh the dish with the lid. Heat again at  $105 \pm 2$  <sup>0</sup>C in the drying oven for 30 minutes. Cool the dish in the

desiccator and weigh. Repeat this process of heating for 30 minutes, cooling and weighing till the difference in mass between two successive weighings is less than one milligram. Note the lowest mass.

#### NOTE

Preserve the dish containing this dried material for the determination of total ash.

## **B.3 CALCULATION**

Moisture, per cent by mass =  $\frac{(m_1 - m_2)}{(m_1 - m_0)} \times 100$ 

where,

$m_0$	is the mass, in g, of the empty dish;	
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 $m_1$  is the mass, in g, of the dish with the material before drying; and

 $m_2$  is the mass, in g, of the dish with the material after drying.

#### APPENDIX C DETERMINATION OF TOTAL ASH

## C.1 APPARATUS

**C.1.1** Muffle furnace, capable of controlled at  $600\pm 20$  <sup>o</sup>C.

#### C.1.2 Meker burner

#### C.2 PROCEDURE

«#

**C.2.1** Ignite the dried material (*see* Appendix **B**) in the dish with the flame of a Meker burner till it chars. Complete the ignition by keeping in a muffle furnace at  $600 \pm 20$  °C until grey ash results. Cool in a desiccator and weigh. Heat again at  $600 \pm 20$  °C in the muffle furnace for 30 minutes. Cool in the desiccator and weigh. Repeat the process of heating for 30 minutes, cooling and weighing till the difference in mass between two successive weighings is less than one milligram. Note the lowest mass.

## NOTE

Preserve the dish containing this ash for the determination of acid insoluble ash.

## C.3 CALCULATION

Total ash (on dry basis), per cent by mass =  $\frac{(m_3 - m_0)}{(m_2 - m_0)} \times 100$ 

where,

 $m_0$  is the mass, in g, of the empty dish;  $m_2$  is the mass, in g, of the dish with the dried material taken for the test and  $m_3$  is the mass, in g, of the dish, with the ash.

#### APPENDIX D DETERMINATION OF ACID INSOLUBLE ASH

#### **D.1 REAGENTS**

#### **D.1.1 Dilute hydrochloric, acid**, approximately 5 M.

#### **D.2 PROCEDURE**

**D.2.1** To the ash contained in the dish (*see* Appendix C), add 25 ml of dilute Hydrochloric acid, cover with a watch-glass and heat on a water-bath for 10 minutes. Allow to cool and filter the contents of the dish through Whatman ashless filter paper No. 42 or its equivalent. Wash the filter paper with water until the washings are free from acid. Return the filter paper and the residue to the dish. Dry it in a drying-oven maintained at  $105 \pm 2$  <sup>0</sup>C for about, three hours. Ignite in the muffle furnace at  $600 \pm 20$  <sup>0</sup>C for one hour. Cool the dish in a desiccator and weigh. Heat again at  $600 \pm 20$  <sup>0</sup>C in the muffle furnace for 30 minutes. Cool the dish in the desiccator and weigh.

Repeat the process of heating for 30 minutes cooling and weighing till the difference in mass between two successive weighings is less than one milligram. Note the lowest mass.

# **D.3** CALCULATION

Acid insoluble ash (on dry basis), per cent by mass = 
$$\frac{(m_4 - m_0)}{(m_2 - m_0)} \times 100$$

where,

- $m_0$  is the mass, in g, of the empty dish;
- $m_2$  is the mass, in g, of the dish, with the dried material taken for the determination of total ash and
- $m_4$  is the mass, in g, of the dish with the acid insoluble ash.

#### APPENDIX E DETERMINATION OF TOTAL PROTEIN

#### E.1 APPARATUS

#### E.1.1 Nitrogen distillation apparatus

- E.2 REAGENTS
- **E.2.1** Boric acid, solution 2 per cent (v/v).

**E.2.2** Catalyst mixture, containing 96 per cent anhydrous Sodium sulfate, 3.5 per cent Copper sulfate and 0.5 per cent Selenium dioxide.

**E.2.3** Concentrated sulfuric acid, relative density = 1.84.

**E.2.4** Screened Methyl red indicator, containing 0.016 per cent Methyl red and 0.083 per cent Bromo-cresol green in alcohol.

**E.2.5** Sodium hydroxide, solution 50 per cent (v/v).

**E.2.6** Sulfuric acid, standard volumetric solution,  $c (H_2SO_4) = 0.05 \text{ mol}/1$ .

E.2.7 Zinc, granules.

## **E.2 PROCEDURE**

Weigh to the nearest milligram, 2 g of the sample and transfer to a Kjeldahl digestion flask. Add 8 g of catalyst mixture (**E.2.2**) and 20 ml of concentrated Sulfuric acid. Heat the flask in an inclined position. When the initial frothing has ceased, fit a loose pear stopper and heat more strongly, so that the liquid boils at a moderate rate. Shake the flask from time to time and continue the heating for one hour after the liquid has become clear. Cool and wash the digest into the distilling flask, with 400 ml of "ammonia-free" water and add about 3 g of Zinc granules. To the receiving flask add 50 ml of Boric acid solution (**E.2.1**) and screened methyl red indicator (**E.2.4**). Connect the distillation apparatus with the delivery tube dipping below the boric acid solution. Make the diluted digest alkaline with about 75 ml of Sodium hydroxide solution (**E.2.5**). Close the tap and distill the ammonia into the Boric acid solution. After about 300 ml has distilled over, open the tap and wash the condenser and delivery tube into the receiver. Titrate the distillate with Sulfuric acid (**E.2.6**).

Carry out a blank titration using all reagents in the same quantities but without the material to be tested.

#### NOTE

The blank should not exceed 0.5 ml of Sulfuric acid (E.2.6)

## **E.4 CALCULATION**

Total protein (on dry basis), per cent by mass = 
$$\frac{798 (V_1 - V_2)c}{m (100 - M)} \ge 2$$

where,

- *m* is the mass, in g, of the prepared material taken for the test;
- $V_2$  is the volume, in ml of the standard Sulfuric acid required for the blank determination;
- $V_I$  is the volume, in ml of the standard Sulfuric acid required for titration the distillate in the test with the material;
- *c* is the concentration, mol/ 1 of the standard Sulfuric acid solution; and
- *M* is the moisture per cent by mass of the material (*see* Appendix **B**).

#### APPENDIX F DETERMINATION OF TOTAL SOLIDS IN GRUEL

#### F.1 APPARATUS

- **F.1.1 Drying oven**, capable of being controlled at 105±2 °C.
- F.1.2 Hot plate or Bunsen burner
- F.1.3 Lipless beaker, tal1-form, capacity 500 ml.

#### F.1.4 Water bath

#### F.2 PROCEDURE

**F.2.1** Take 250 ml of water into lipless beaker and heat over hotplate or bunsen burner till water boils. Introduce 25.0 g of the material (previously broken into about 10 mm lengths in case of long pasta products) and stir thoroughly with a glass rod. Cook according to the labeling instructions (*see* Clause **9.1**) and / or cooking time (*see* Clause **6.3**) specified in the Standard. Then allow the material to drain through a strainer for five minutes. Measure the volume of gruel collected. Pipette 20 ml of the gruel, after stirring well to give an even distribution of the solid content, into a previously tared suitable dish and evaporate to dryness on a water bath. Transfer the dish to a hot drying-oven maintained at  $105 \pm 2$  °C and heat for two hours. Cool the dish in a desiccator and weigh. Heat again at  $105 \pm 2$  °C in the drying-oven for 30 minutes. Cool the dish in the desiccator and weigh. Repeat this process of heating for 30 minutes, cooling and weighing till the difference in mass between two successive weighings is less than one milligram. Note the lowest mass.

## F.3 CALCULATION

Total solids in gruel, per cent by mass  $= \frac{(m_1 - m_0)V}{5}$ 

where,

- $m_0$  is the mass, in g, of the empty dish;
- $m_1$  is the mass, in g, of the dish with the total solids present in 20 ml of gruel; and
- V is the volume, in ml, of gruel.

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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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