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SPECIFICATION FOR
CHILLI SAUCE
(First Revision)

SRI LANKA STANDARDS INSTITUTION

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SLS 581 : 2008
(Attached AMD 496 and AMD 570)

Gr. 11

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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.

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SPECIFICATION FOR CHILLI SAUCE
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FOREWORD

This Sri Lanka Standard was approved by the Sectoral Committee on Agriculture and Food Products and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 2008-07-29.

Chilli sauce is mainly used to enhance the flavour by introducing the added tang to cooked food and also has been widely used as a marinade and flavouring agent in the preparation of food. Through the years, chilli sauce has gained increasing appeal and acceptance as an important culinary item both domestically and worldwide among consumers due to its sensory qualities.

This specification was first published in 1982. In this revision, the list of optional ingredients had been further expanded to give provision for different types available in the market, thereby reflecting the developments made in the industry.

This specification is subject to the restrictions imposed under the Sri Lanka Food Act No. 26 of 1980 and the regulations framed thereunder, wherever applicable.

For the purpose of deciding whether a particular requirement of this specification is complied with, the final value, observed or calculated, expressing the results of a test or an analysis, shall be rounded off in accordance with **CS 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 specification, the assistance derived from the following publications is gratefully acknowledged.

MS 532 :1995 - Malaysian Standard Specification for Red Chilli Sauce (Second Revision)
SS 340 : 1999 - Singapore Standard Specification for Chilli Sauce (First Revision)
TIS 242 : 2533 (1990) - Thai Industrial Standard for Chilli Sauce (First Revision)

1 SCOPE

1.1 This specification prescribes the requirements, methods of sampling and testing for chilli sauce.

2 REFERENCES

SLS	79	Edible common salt
CS	102	Presentation of numerical values
SLS	143	Code of practice for food hygiene
SLS	168	Coconut vinegar
SLS	191	White Sugar
SLS	209	Code of hygienic practice for the manufacture of fruit and vegetable products (processed)
SLS	347	Determination of titratable acidity in fruit & vegetable products
SLS	428	Random sampling methods
SLS	467	Code of practice for labelling of prepackaged foods
SLS	614	Potable water
SLS	625	Artificial vinegar
SLS	1332	Methods of test for fruit and vegetable products

3 DEFINITIONS

3.1 chillies : The fresh, mature and clean chillies of *Capsicum annum* L. *and/or Capsicum frutescens* L **.** , or preserved chillies.

3.2 chilli sauce : The product prepared from " chilli ingredient", with sugar, salt, vinegar with or without other optional ingredients and devoid of a dominant flavour of any other added spice(s) except the peculiar poignant and tangy chilli flavour and pungency.

3.3 sweet chilli sauce : The product prepared from " chilli ingredient", with sugar, salt, vinegar with or without other optional ingredients and devoid of a dominant flavour of any other added spice(s) except the peculiar poignant and tangy chilli flavour and pungency, and containing not less than 30 % (m/m) sugar .

3.4 mixed chilli sauce : The product prepared from " chilli ingredient", with sugar, salt, vinegar with onions, garlic, ginger, and other spices as main ingredients added, individually and/or combination.

3.5 green chilli sauce : The product prepared from green chillies, with sugar, salt, vinegar with or without other optional ingredients.

4 TYPES

Chilli sauce shall be of the following types :

4.1 Chilli sauce
4.2 Sweet chilli sauce
4.3 Mixed chilli sauce
4.4 Green chilli sauce

5 INGREDIENTS

All ingredients used shall comply with the Food Act No. 26 of 1980 and the regulations framed thereunder.

5.1 Basic ingredients

The following basic ingredients shall be used.

5.1.1 ***'****Chilli' ingredient*

This shall be obtained from fresh chillies, dehydrated chillies, chillies in brine or chilli solids derived from clean and wholesome ripened chillies.

5.1.2 *Sugar*

Sugar used shall be refined sugar (sucrose), conforming to **SLS 191**

5.1.3 *Edible common salt*, conforming to **SLS 79**

5.1.4 *Vinegar*

Vinegar added to the product shall be any brewed vinegar, spirit vinegar or acetic acid (artificial vinegar). Coconut vinegar or artificial vinegar, if added, shall conform to **SLS 168** or **SLS 625**.

5.1.5 *Potable water,* conforming to **SLS 614**

5.2 Optional ingredients

In addition to the ingredients given in **5.1**, one or more of the following may be used.

5.2.1 *Fresh tomatoes/Tomato paste/Tomato purée*
5.2.2 *Onions*
5.2.3 *Garlic*
5.2.4 *Ginger*
5.2.5 *Spices or spice extracts*
5.2.6 *Ascorbic acid*
5.2.7 *Citric acid*
5.2.8 *Preservatives* (see Table **1**)
Sulphites
Benzoates
Sorbates

5.2.9 *Stabilizers*
Pectins
Alginates

5.2.10 *Thickeners*
Modified starches, not exceeding 0.5 % of the product.
Xanthan gum, not exceeding 0.5 % of the product.

6 REQUIREMENTS

6.1 Hygiene

The product shall be processed, packaged, stored, transported and distributed in accordance with the conditions prescribes in **SLS 143** and **SLS 209.**

6.2 Appearance

6.2.1 The product shall have the natural red colour of well ripened chillies . Seeds and seed fragments are acceptable, except when they are in excessive amounts and alter the colour and quality of the product. It shall be free from core material, pieces of stem and dark specs, insects and other foreign substances.

6.2.2 In green chilli sauce, the product shall have the natural green colour of fully matured unripened chillies.

6.3 Flavour and odour

The product shall have the palatable flavour basically that of chilli modified by the other ingredients added as appropriate. It shall be free from off-flavour and off-odour.

6.4 Texture

The product shall have a homogeneous, semi-liquid consistency and shall not be too thick as being unpourable; but the consistency shall not be too thin.

6.5 Colouring substances

The product shall not contain any added artificial colouring substances.

NOTE *: Only in green chilli sauce, permitted artificial colouring substances may be present.*

6.6 Chilli solids

The product shall contain a minimum of 5 per cent by mass of chilli solids.

6.7 Other requirements

The product shall also comply with the requirements prescribed in Table **1** when tested according to the methods given in Column **7** of the Table.

TABLE 1 - Requirements for chilli sauce

Sl. No.	Characteristic	Requirement				Method of Test
		Chilli Sauce	Sweet chilli sauce	Mixed chilli sauce	Green chilli sauce	(7)
(1)	(2)	(3)	(4)	(5)	(6)	
i)	Total solids, per cent by mass, (Min.)	34	45	30	35	SLS 1332 Part 4
ii)	Total soluble solids, per cent by mass,(Min.)	30	40	25	30	SLS 1332 Part 2
iii)	Acidity, as acetic acid, per cent by mass,(Min.)	0.8	0.6	0.8	1.0	Appendix B
iv)	Total sugars (as invert sugar), per cent by mass	25 (Max.)	30 (Min.)	20 (Max.)	25 (Max.)	Appendix C
v)	Sulphur dioxide content, mg/kg,(Max.)*+	100	100	100	100	Appendix D
vi)	Benzoic acid content, mg/kg,(Max.)+	250	250	250	250	Appendix E
vii)	Sorbic acid content, mg/kg, (Max.) +	1000	1000	1000	1000	Appendix E

NOTE ***:*** ** Canned products shall not contain sulphur dioxide.*

+ When combination of the above preservatives are present the quantity of each preservative expressed as a percentage of the maximum permitted limit of that preservative shall be calculated. The sum of these percentages shall not exceed 100.

6.8 Microbiological limits

The product shall conform to the microbiological limit given in Table **2** tested according to the method prescribed Column **4** of the Table.

TABLE 2 – Microbiological limits

Sl. No. (1)	Test (2)	Limit (3)	Method of Test (4)
i)	Howard mould count, per cent of fields containing mould filaments, (Max.)	40	Appendix F

6.9 Limits for heavy metals

The product shall conform to the tolerance limits for heavy metals given in Table **3** when tested according to the methods prescribed in Column **4** of the Table.

TABLE 3 - Limits for heavy metals

SI. No. **(1)**	**Heavy metal** **(2)**	**Limit** **(3)**	**Method of test** **(4)**
i)	Arsenic (as As), mg/kg, (Max.)	1.0	Appendix G
ii)	Cadmium (as Cd), mg/kg, (Max.)	1.0	
iii)	Lead (as Pb), mg/kg, (Max.)	2.0	
iv)	Tin (as Sn), mg/kg (Max.)	40*	

** For canned products (Max.) 250 mg/kg*

7 PACKAGING

The product shall be filled in sound, clean, glass or other suitable food grade containers under strict hygienic conditions so as to protect it from deterioration and the containers shall be sealed air-tight.

8 MARKING AND /OR LABELLING

8.1 The following shall be marked or labelled legibly and indelibly on each container destined for the final consumer .

a) Name of the product as “Chilli Sauce/Sweet Chilli Sauce/Mixed Chilli Sauce/Green Chilli Sauce” ;

NOTE *: In the case of Mixed Chilli Sauce the common name(s) of the main ingredient(s) may be used, where such use will not confuse the consumer.*

b) Brand name or trade name, if any ;
c) Net contents, in ‘ml’ or ‘g’ ;
d) Food additive’s name or INS number;
e) Instructions for storage and use, if any;
f) Name and address of the manufacturer and packer or distributor in Sri Lanka ;
g) Batch number or code number or a decipherable code marking;
h) Date of manufacture;
j) Date of expiry ;
k) Complete list of ingredients in descending order of proportion; and
m) Country of origin, in case of imported products.

8.2 The Marking and labelling shall also be in accordance with **SLS 467**.

9 SAMPLING

Representative samples of the product shall be drawn as prescribe in Appendix A.

10 METHODS OF TEST

Tests shall be carried out as given in **SLS 348** and Appendices **B** to **G** of this specification.

11 CRITERIA FOR CONFORMITY

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

10.1 Each container examined as in **A.4.1** satisfies the packaging and marking requirements.

10.2 Each container tested as in **A.4.2** satisfies the relevant microbiological requirement.

10.3 Each container tested as in **A.4.3** satisfies the relevant requirements.

10.4 The composite sample tested as in **A.4.4** satisfies the relevant requirements

APPENDIX A
SAMPLING

A.1 LOT

In any consignment all the containers of the same size filled with the product belonging to one batch of manufacture or supply shall constitute a lot.

A.2 GENERAL REQUIREMENTS OF SAMPLING

In drawing, preparing, storing 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 The sampling instruments shall be clean and dry when used. When drawing samples for microbiological examination, the sampling instruments shall be sterilized.

A.2.3 The samples shall be protected against adventitious contamination.

A.2.4 The samples shall be placed in clean and dry containers. The size of the sample containers shall be of such that they are almost completely filled by the sample. When drawing samples for microbiological examination, the sample containers shall be sterilized.

A.2.5 The sample containers shall be sealed air-tight after filling and marked with necessary details of sampling.

A.2.6 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 examined from each lot for ascertaining its conformity to the requirements of this specification.

A.3.2 The number of containers to be selected from a lot shall be in accordance with Table **4**. A sub sample as given in Column **3** of the Table shall be selected for microbiological tests from the sample selected as in Column **2** of the Table.

TABLE 4 – Scale of sampling

No. of containers in the lot (1)	No. of containers to be selected (2)	Size of the sub-sample for microbiological requirement (3)
Up to 150	05	02
151 to 500	07	03
501 to 1 200	10	04
1 201 to 3 201	12	05
3 201 and above	15	06

A.3.3 If the containers are packed in packing cases ten per cent of the cases subject to a minimum of 5 cases shall be selected from the lot. As far as possible an equal number of containers shall be selected from each case so as to form the sample of size given in Column **2** of Table **4** .

A.3.4 Containers and cases shall be selected at random. In order to ensure randomness of selection, tables of random numbers as given in **SLS 428** shall be used.

NOTE: *In case of quantity of material selected for testing of requirements is insufficient (sachet type of packages), required number of samples shall be drawn from the lot.*

A.3.5 Reference sample

If a reference sample is required, the number of containers to be selected from a lot shall be three times the number given in Column **2** of Table **4**. The containers so selected shall be divided into three equal parts. One of these parts shall be marked for the purchaser, one for the supplier and the third for referee.

NOTE : *In case of microbiological requirements, a reference sample is not required.*

A.4 NUMBER OF TESTS

A.4.1 Each container selected as in **A.3.2** or **A.3.3** shall be inspected for packaging and marking requirements.

A.4.2 The Howard mould count shall be carried out on the contents of each container selected from the sub-sample as given in Column **3** of Table **4.**

A.4.3 The contents of each of the remaining containers selected as in **A.3.2** shall be tested for requirement given in **6.2, 6.3** and **6.4.**

A.4.4 The material left over after carrying out the tests given in **A.4.3** shall be mixed thoroughly and the composite mixture shall be tested for other requirements as given in **6.5, 6.7** and **6.9.**

NOTE : *Test for the requirement given in 6.6 may not be necessary for routine analysis. This test shall be carried out only if required or requested.*

APPENDIX B
DETERMINATION OF ACIDITY

Determination of acidity shall be carried out according to the method described below or method described in **SLS 347**.

B.1 REAGENTS

B.1.1 *Sodium hydroxide,standard solution*, approximately 0.1 mol/dm^3.

B.1.2 *Phenolphthalein indicator solution*

Dissolve 0.5 g of phenolphthalein in 200 ml of 50 per cent (v/v) ethyl alcohol.

B.2 PROCEDURE

Weigh to the nearest milligram about 5g of the sauce in a suitable dish. Transfer the contents to a conical flask with 100 ml to 150 ml of recently boiled and cooled distilled water. Add 1 ml of the phenolphthalein indicator solution and titrate against the standard sodium hydroxide solution. To compare the colour change at the end point, use another portion of the sample diluted to the same proportion in a similar flask.

B.3 CALCULATION

$$\text{Acidity (as acetic acid) per cent by mass} = \frac{6\ VM}{m}$$

where,

V is the volume, of standard sodium hydroxide solution required for titration, in ml ;

M is the molarity, of the standard sodium hydroxide solution ; and

m is the mass, of the sauce taken for the test, in g.

APPENDIX C
DETERMINATION OF TOTAL SUGAR

C.1 REAGENTS

C.1.1 Standard dextrose solution

Weigh accurately 10 g of anhydrous dextrose into a one litre graduated flask, dissolve it in water and make up the volume to mark with water.
Dilute a known aliquot of this solution of dextrose with water to such a concentration that more than 15 ml but less than 50 ml of it will be required to reduce all the copper in the Fehling's solution taken for titration. Note the concentration of anhydrous dextrose in this solution as milligrams per 100 ml (see Note)

NOTE : *When 10 ml of Fehling's solution are taken for titration, a standard dextrose solution containing 0.11 to 0.30 per cent (m/V) of anhydrous dextrose is convenient for use.*

C.1.2 Methylene blue indicator solution

Dissolve 0.2 g of methylene blue in water and dilute to 100 ml.

C.1.3 Fehling's solution

Prepared by mixing immediately before use, equal volumes of Solution **A** and Solution **B**.

C.1.3.1 *Solution A*

Dissolve 34.639 g of copper sulphate ($CuSO_4$. $5H_2O$) in water, add 0.5 ml of concentrated sulphuric acid of relative density 1.84 and dilute to 500 ml in a graduated flask. Filter the solution through prepared asbestos.

C.1.3.2 *Solution B*

Dissolve 173 g of Rochelle salt (potassium sodium tartrate ($KNaC_4H_4O_6$. $4H_2O$) and 50 g of sodium hydroxide analytical reagent in water, dilute to 500 ml in a graduated flask and allow the solution to stand for two days. Filter the solution through prepared asbestos.

C.1.3.3 *Hydrochloric acid***,** concentrated.

Relative density 1.16, of analytical reagent grade.

C.1.3.4 *Standardization of Fehling's solution*

Pour standard dextrose solution (see **C.1.1**) into a 50-ml burette (see Note **3** under **C.2.3**). Find the titre (that is the volume of standard dextrose solution required to reduce all the copper in 10 ml of Fehling's solution) corresponding to the concentration of standard dextrose solution from Table **5**. (If, for example, the standard dextrose solution contains 167.0 mg of anhydrous dextrose per 100 ml, the corresponding titre would be 30 ml). Pipette 10 ml Fehling's solution into a 300-ml conical flask and run in from the burette almost the whole of the standard dextrose solution required to effect reduction of all the copper, so that, not more than one millilitre will be required later to complete the titration. Heat the flask containing the mixture over a wire gauze. Gently boil the contents of the flask for two minutes. At the end of two minutes of boiling, add without interrupting boiling, one millilitre of methylene blue indicator solution. While the contents of the flask continue to boil, begin to add standard dextrose solution (one or two drops at a time) from the burette till the blue colour of the indicator just disappears. (The titration should be completed within one minute, so that the contents of the flask boil altogether for 3 minutes without interruption (see Note **2** under **D.2.3**). Note the titre (that is the total volume in millilitres of standard dextrose solution ;used for the reduction of all the copper in 10 ml of Fehling's solution). Multiply the titre (obtained by direct titration) by the number of milligrams of anhydrous dextrose in one millilitre of the standard dextrose solution to obtain the dextrose factor given in Table **5** and determine correction, if any, to be applied to the dextrose factor derived from Table **5.**

Example :

Concentration, in mg/100 ml, of anhydrous Dextrose in standard dextrose solution	=	167.0
Titre, in ml. obtained by direct titration	=	30.1
Dextrose factor for 30.1 ml of standard dextrose solution	=	Titre in ml x number of mg of anhydrous dextrose in one ml of standard dextrose solution
	=	30.1 x 1.670
	=	50.267 0
Dextrose factor for 30.1 ml of standard dextrose solution from Table 5 (calculated by interpolation)	=	50.11
Correction to be applied to the dextrose factor derived from Table 5	=	50.267 0 - 50.11 + 0.157 0

C.2 PROCEDURE

C.2.1 Preparation of the sample solution

C.2.1.1 Weigh to the nearest milligram about 10 g of the sample, transfer to a 250-ml volumetric flask using 125 ml 50 per cent v/v ethanol and add one gram to two grams $CaCO_3$. Mix thoroughly and boil in a steam bath for one hour using small funnel in the neck of flask to condense vapour. Cool and let the mixture stand for several hours preferably over-night. Dilute to volume ;with neutral 95 per cent v/v ethanol, mix thoroughly and let it settle or centrifuge it for15 minutes at 1500 rpm. Decant supernatant completely.

C.2.1.2 Pipette 200 ml supernatant into a 400-ml beaker and evaporate on a steam bath to 20 ml to 30 ml. Transfer to a 100-ml volumetric flask and rinse the beaker thoroughly with water, adding rinsings to the flask. Add enough saturated neutral lead acetate solution (about two ml) to produce flocculent, precipitate but avoiding any excess, shake thoroughly, and let the solution stand for 15 minutes. Dilute to the mark with water, mix thoroughly and filter through dry filter paper. Add enough potassium oxalate to filtrate to precipitate all the lead, again filter through dry filter paper, and test filtrate with a small amount of potassium oxalate to make sure that all lead has been removed.

C.2.1.3 Pipette 50 ml of aliquot (representing 4 g of sample) into a 250-ml conical flask, add 7 ml of concentrated hydrochloric acid and 40 ml water, heat at 80^0 C on a steam bath for one hour with a rubber bung fitted with a glass tube about 60 cm long. Cool, neutralize with 20 per cent v/v sodium hydroxide solution. Transfer to a 200-ml volumetric flask and make up to the mark with water. Dilute this solution further by pipetting 25 ml of the solution into a 10-ml volumetric flask and make up to the mark with water.

C.2.1.4 Determine the total sugars in the sample by titrating it against 10 ml of mixed Fehling's solution, with methylene blue as indicator, following the method of titration for the standardization of Feling's solution. To estimate the amount of sugar solution required, carry out preliminary titration in 1-ml increments.

C.2.2 Incremental method of titration

Pour the prepared solution (see **C.2.1**) into a 50-ml burette (see Note 3 below **C.2.3**). Pipette 10-ml of Fehling's solution into a 300-ml conical flask and run in from the burette 15 ml of the prepared solution. Without further dilution, heat the contents of the flask over a wire gauze, and boil,. (After the liquid has been boiling for about 15 seconds it will be possible to judge if almost, all the copper is reduced by the bright red colour imparted to the boiling liquid by the suspended cuprous oxide). When it is judged that nearly all the copper is reduced, add one millilitre of methylene blue indicator solution (see Note **1**). Continue boiling the contents of the flask for one to two minutes from the commencement of ebullition, and then add the prepared solution in small quantities (one millilitre or less at a time), allowing the liquid to boil for about ten seconds between successive additions, till the blue colour of the indicator just disappears (see Note **2** below **C.2.3**). In case there still appears to be much unreduced copper after the

mixture of Fehling's solution with 15 ml of the prepared solution has been boiling for 15 seconds, add the prepared solution form the burette in larger increments (more than one millilitre at a time according to judgement), and allow the mixture to boil for 15 seconds after each addition.

Repeat the addition of the prepared solution at intervals of 15 seconds after each addition. Repeat the addition of the prepared solution at intervals of 15 seconds until it is considered unsafe to add a large increment of the prepared solution. At this stage, continue the boiling for an additional one to two minutes, add one millilitre of methylene blue indicator solution and complete the titration by adding the prepared solution in small quantities (less than one millilitre at a time (see also Note **2**).

NOTES :

1 *It is advisable not to add the indicator until the end point has been nearly reached because the indicator retains its full colour until the end point is almost reached and thus gives no warning to the operator to go slowly.*

*2 When the operator has had a fair amount of experience with the method, a sufficiently accurate result may often be obtained by a single estimation by the incremental method of titration. For the utmost degree of accuracy of which the method is capable, a second titration should be carried out by the standard method of titration (see **D.2.3**).*

C.2.3 Standard method of titration

Pipette 10 ml of Fehling's solution into a 300 ml conical flask and run in from the burette almost the whole of the prepared solution required to effect reduction of all the copper (determined under **C.2.2**) so that, if possible, not more than one millilitre will be required later to complete the titration. Gently boil the contents of the flask for two minutes.

At the end of two minutes of boiling, add without interrupting boiling one millilitre of methylene blue indicator solution. While the contents of the flask continue to boil, begin to add the prepared solution (one or two drops at a time) from the burette till the blue colour of the indicator just disappears (see Note **1**). The titration should be completed within one minute so that the contents of the flask boil altogether for 3 minutes without interruption (see Note **2**).

In case of doubt, the flame may be removed from the wire gauze for one or two seconds and the flask held against a sheet of white paper. (A hold of paper, suitably fixed around the neck of the flask is very convenient for this purpose as it can be left round the neck of the flask is very convenient for this purpose as it can be left round the neck of the flask, without risk of overbalancing it). The top edge of the liquid would appear bluish if the indicator is not completely decolourized.

It is inadvisable to interrupt the boiling for more than a few seconds as the indicator undergoes back oxidation rather rapidly when air is allowed free access into the flask, but there is no danger of this as long as a continuous stream of steam is issuing from the mouth of the flask.

NOTES :

1 *The indicator is so sensitive that it is possible to determine the end point within one drop of the prepared solution in many cases. The complete decolouration of the methylene blue is usually indicated by the whole reaction liquid, in which the cuprous oxide is continuously churned up, becoming bright red or orange in colour.*

2 It should be observed that with both incremental and standard methods of titration, the flask containing the reaction mixture is left on the wire gauze over the flame throughout the titration, except when it may be removed for a few seconds to ascertain if the end point is reached.

3 In adding sugar solution to the reaction mixture, the burette may be held in hand over the flask. The burette may be fitted with a small outlet tube bent twice at right angles, so that the body of the burette can be kept out of the steam while adding sugar solution. Burettes with glass taps are unsuitable for this work, as the taps become heated by the steam and thus are liable to jam.

C.3 CALCULATION

C.3.1 Refer to Table **5** for the dextrose factor corresponding to the titer (determined as given under **C.2.3**) and apply the correction previously determined under **C.1.3.3**. Calculate the dextrose content of the prepared solution (see **C.2.1**) as follows :

Milligrams of anhydrous dextrose present in one millilitre of the prepared solution $= m = \frac{\text{dextrose factor}}{\text{titer}}$

C.3.2 *Total sugars* (*as invert*), *per cent by mass* $= 200 \times \frac{m}{m_1}$

Where,

m is the milligrams, of reducing sugar of the solution of the material, in 1ml (see **C.3.1**) ; and
m_1 is the mass, of the prepared sample used for making 250 ml of solution, in g. (see **C.2.1**)

TABLE 5 – Dextrose table for 10 ml of Fehling's solution

ml of sugar solution required (1)	Dextrose factor * (2)	mg Dextrose per 100 ml (3)
15	49.1	327
16	49.2	307
17	49.3	289
18	49.3	274
19	49.4	260
20	49.5	247.4
21	49.5	235.8
22	49.6	225.5
23	49.7	216.1
24	49.8	207.4
25	49.8	199.3
26	49.9	191.8
27	49.9	184.9
28	50.0	178.5
29	50.0	172.5
30	50.1	167.0
31	50.2	161.8
32	50.2	156.9
33	50.3	152.4
34	50.3	148.0
35	50.4	143.9
36	50.4	140.0
37	50.5	136.4
38	50.5	132.9
39	50.6	129.6
40	50.6	126.5
41	50.7	123.6
42	50.7	120.8
43	50.8	118.1
44	50.8	115.5
45	50.9	113.0
46	50.9	110.6
47	51.0	108.4
48	51.0	106.2
49	51.0	104.1
50	51.1	102.2

* mg of dextrose corresponding to 10 ml of Fehling's solution

TABLE 6 – Invert sugar table for 10 ml of Fehling's solution

ml of sugar solution required	Solution containing besides invert sugar									
	No sucrose		1 g sucrose per 100 ml		5 g sucrose per 100 ml		10 g sucrose per 100 ml		25 g sucrose per 100 ml	
	Invert sugar factor*	mg Invert sugar per 100 ml	Invert sugar factor*	mg Invert sugar per 100 ml	Invert sugar factor*	mg Invert sugar per 100 ml	Invert sugar factor*	mg Invert sugar per 100 ml	Invert sugar factor*	mg Invert sugar per 100 ml
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
15	50.5	336	49.9	333	47.6	317	46.1	307	43.4	289
16	50.6	316	50.0	312	47.6	297	46.1	288	43.4	271
17	50.7	298	50.1	295	47.6	280	46.1	271	43.4	255
18	50.8	282	50.1	278	47.6	264	46.1	256	43.3	240
19	50.8	267	50.2	264	47.6	250	46.1	243	43.3	227
20	50.9	254.5	50.2	251.0	47.6	238.0	46.1	230.5	43.2	216
21	51.0	242.9	50.2	239.0	47.6	226.7	46.1	219.5	43.2	206
22	51.0	231.8	50.3	228.2	47.6	216.4	46.1	209.5	43.1	196
23	51.1	222.2	50.3	218.7	47.6	207.0	46.1	200.4	43.0	187
24	51.2	213.3	50.3	209.8	47.6	198.3	46.1	192.1	42.9	179
25	51.2	204.8	50.4	201.6	47.6	190.4	46.0	184.0	42.8	171
26	51.3	197.4	50.4	193.8	47.6	183.1	46.0	176.9	42.8	164
27	51.4	190.4	50.4	186.7	47.6	176.4	46.0	170.4	42.7	158
28	51.4	183.7	50.5	180.2	47.7	170.3	46.0	164.5	42.7	152
29	51.5	177.6	50.5	174.1	47.7	164.5	46.0	158.6	42.6	147
30	51.5	171.7	50.5	168.3	47.7	159.0	46.0	153.3	42.5	142
31	51.6	166.3	50.6	163.1	47.7	153.9	45.9	148.1	42.5	137
32	51.6	161.2	50.6	158.1	47.7	149.1	45.9	143.4	42.4	132
33	51.7	156.6	50.6	153.3	47.7	144.5	45.9	139.1	42.3	128
34	51.7	152.2	50.6	148.9	47.7	140.3	45.8	134.9	42.2	124
35	51.8	147.9	50.7	144.7	47.7	136.3	45.8	130.9	42.2	121
36	51.8	143.9	50.7	140.7	47.7	132.5	45.8	127.1	42.1	117
37	51.9	140.2	50.7	137.0	47.7	128.9	45.7	123.5	42.0	114
38	51.9	136.6	50.7	133.5	47.7	125.5	45.7	120.3	42.0	111
39	52.0	133.3	50.8	130.2	47.7	122.3	45.7	117.1	41.9	107
40	52.0	130.1	50.8	127.0	47.7	119.2	45.6	114.1	41.8	104
41	52.1	127.1	50.8	123.9	47.7	116.3	45.6	111.2	41.8	102
42	52.1	124.2	50.8	121.0	47.7	113.5	45.6	108.5	41.7	99
43	52.2	121.4	50.8	118.2	47.7	110.9	45.5	103.8	41.6	97
44	52.2	118.7	50.9	115.6	47.7	108.4	45.5	103.4	41.5	94
45	52.3	116.1	50.9	113.1	47.7	106.0	45.4	101.0	41.4	92
46	52.3	113.7	50.9	110.6	47.7	103.7	45.4	98.7	41.4	90
47	52.4	111.4	50.9	108.2	47.7	101.5	45.3	96.4	41.3	88
48	52.4	109.2	50.9	106.0	47.7	99.4	45.3	94.3	41.2	86
49	52.5	107.1	51.0	104.0	47.7	97.4	45.2	92.3	41.1	84
50	52.5	105.1	51.0	102.0	47.7	95.4	45.2	90.4	41.0	82

* mg of invert sugar corresponding to 10 ml of Fehling's solution

APPENDIX D
DETERMINATION OF SULPHUR DIOXIDE CONTENT

Determination of sulphur dioxide content shall be carried out according to the method described in ISO 5522 : 1981 (Fruits, vegetables and derived products – Determination of total sulphur dioxide content) or ISO 5523 : 1981 (Liquid fruit and vegetable products – Determination of sulphur dioxide content – Routine method) or AOAC(Association of Official Analytical Chemistry),18th Edition, 2005, method 962.16.

APPENDIX E
DETERMINATION OF BENZOIC ACID AND SORBIC ACID CONTENTS

Determination of benzoic acid and sorbic acid contents shall be carried out according to the method described in SLS 1332 Part 3 / ISO 22855 : 2008 (Fruit and vegetable products – Determination of benzoic acid and sorbic acid concentrations – High-performance liquid chromatography method) or AOAC (Association of Official Analytical Chemistry),18th Edition, 2005, methods 960.38 and 983.16.

APPENDIX F
DETERMINATION OF HOWARD MOULD COUNT

F.1 PRINCIPLE

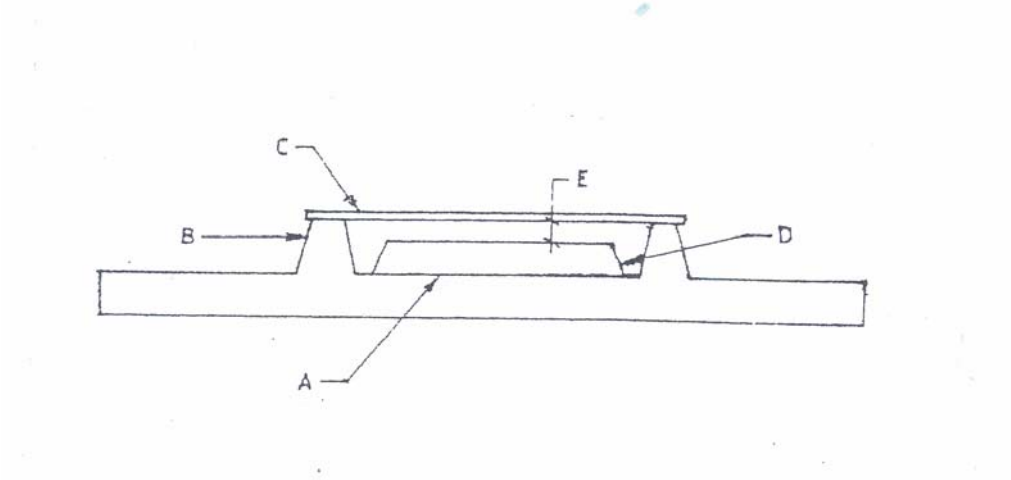
This method consist of a count of microscope fields containing fungus filaments in a standardized counting chamber.

F.2 REAGENTS

F.2.1 *Stabilizer solution, sodium carboxy methyl cellulose* 0.5 per cent (m/m). Place 500 ml boiling water in high speed blender and add 2.5 g cellulose gum and 10 ml formaldehyde and blend for one minute.

F.3 APPARATUS

F.3.1 Howard mould counting slide as shown in Figure **1**.



A is the flat plane circle of 19 mm in diameter or rectangle of 20 mm x 15 mm;
B is the shoulder ;
C is the cover glass ;
D is the moat ; and
E is the clearance of 0.1 mm.

Figure 1 - Howard mould counting slide

F.4 PROCEDURE

F.4.1 *Preparation of sample*

Place 50 ml of stabilizer solution (**F.2.1**) in a 100 ml graduated cylinder. Add 50 ml of well mixed sample by displacement and mix thoroughly.

F.4.2 *Preparation of Howard mould count cell*

F.4.2.1 Clean the Howard slide and cover glass so that Newton's Rings are produced between each shoulder and cover glass, when cover glass is placed in position. If Newton's Rings are not formed, rewash slide and cover glass. Remove the cover glass and with a knife blade or scalpel, place a portion of well mixed sample on the center of the disc. Hold the cover glass parallel to the surface of the central disc and lower it slowly until it just touches the sample portion. While maintaining contact with the sample, the cover glass is lowered rapidly but gently until it just touches the shoulder of the slide, so that the sample spread evenly on the entire surface of the disc. Use only enough sample to reach the edge of the disc.

F.4.2.2 (An alternate technique is to place the sample portion on the central disc halfway between the center of the disc and the for edge. Rest the edge of the cover glass in a slanting position on the edges of the cell shoulders nearest the portion of the test material. Lower the cover glass slightly until it almost touches the test material, then lower it rapidly but gently into place so that the material spreads evenly over the entire surface of the disc.)

Discard any mount showing uneven distribution of sample, absence of Newton's Rings, numerous air bubbles or any liquid which has been drawn across the moat and between the cover glass and shoulder.

F.4.3 *Microscopic examination*

F.4.3.1 Place the slide under the microscope and examine with such adjustment that each field of view covers 1.5 mm^2 (this area which is essential may be obtained by adjusting the draw tube of the microscope so that the diameter of field is 1.382 mm). When such adjustment is not possible, use an accessory occular disc for mould counting with the aperture accurately cut to necessary size. The diameter of the field of the view can be measured by using a stage micrometer. When the instrument is properly adjusted, the quantity of the liquid examined per field of view is 0.15 mm^3 . Use a magnification of 90x to 125x. Use higher magnification (180x to 250x) only for conformation of mould.

F.4.3.2 From each of 2 or more mounts examine 25 or more fields (for absence or presence of moulds) taken in such a manner as to be representative of all sections of the mount. To accomplish this, examine alternate fields horizontally across the slide preparation until 5 fields have been examined. Then move the mechanical stage vertically to the next alternate row and examine 5 more alternate fields in reverse horizontal direction. Repeat this process until 25 fields have been examined. Never move the slide purposely to exclude or include mould filaments.

F.4.3.3 Observe each field, noting presence or absence of mould filaments. Record field as positive when the aggregate length of < 3 of the longest filaments present exceeds 1/6 the diameter of field.

F.5 CALCULATION

F.5.1 Calculate proportion of positive fields from results of examination of all observe fields.

$$\text{Per cent of positive fields} = \frac{\text{Number of positive fields}}{\text{Number of fields examined}} \text{ X } 100$$

F.5.2 Report results as a percentage of fields containing mould filaments.

APPENDIX G
DETERMINATION OF HEAVY METALS

Determination of heavy metals shall be carried out according to the methods given in the Official Methods of Analysis of the AOAC (Association of Official Analytical Chemist), 18th Edition, 2005, as given in Table **7**.

TABLE 7 - Methods for analysis of heavy metals

SI. NO. (1)	**Heavy Metal (2)**	**Method of Analysis (3)**
i)	Arsenic	986.15
ii)	Cadmium	999.11
iii)	Lead	999.11
iv)	Tin	999.11

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AMD 496

Amendment No: 1 Approved on 2017-07-21 to SLS 581: 2008

AMENDMENT NO: 1 TO SLS 581: 2008
SRI LANKA STANDARD SPECIFICATION FOR CHILLI SAUCE
(FIRST REVISION)

EXPLANATORY NOTE

This amendment is issued after a decision taken by the Working group on Processed Fruits and Vegetables in order to insert a new definition, to include permitted sweeteners and the INS numbers of the food additives given under optional ingredients, to amend their limits as per CODEX General Standard on Food Additives (GSFA) and to amend the labelling clause to align with the regulations published under Sri Lanka Food Act.

AMD 496

Amendment No: 1 Approved on 2017-07-21 to SLS 581: 2008

AMENDMENT NO: 1 TO SLS 581: 2008
SRI LANKA STANDARD SPECIFICATION FOR CHILLI SAUCE
(FIRST REVISION)

Page 3
Foreword, Paragraph 4, Line 2
Delete the words "wherever applicable".

Page 4
Clause **3**
Insert a new clause as follows after the clause **3.5**.
"**3.6 sweetener:** Any food additive that is used or intended to be used to impart a sweet taste or as a tabletop sweetener, and does not include carbohydrate sugars"

Page 5
Clause **5.2.6**
Delete the clause **5.2.6** and insert following.
"**5.2.6**

Ascorbic acid	INS 300	} Limited by GMP"
Sodium ascorbate	INS 301	
Calcium ascorbate	INS 302	

Clause **5.2.7**
Insert "INS 330 - Limited by GMP" after the word "*Citric acid*"

Page 6
Clause **5.2.9**
Delete the clause **5.2.9** and insert following.
"**5.2.9** *Stabilizers*

Pectins	INS 440	
Alginic acid	INS 400	
Sodium alginate	INS 401	} Limited by GMP"
Potassium alginate	INS 402	
Ammonium alginate	INS 403	
Calcium alginate	INS 404	

Clause **5.2.10**
Delete the clause **5.2.10** and insert following.

AMD 496

"**5.2.10** *Thickeners*

Modified starches		
Dextrin roasted starch	INS 1400	Limited by GMP"
Acid treated starch	INS 1401	
Alkaline treated starch	INS 1402	
Bleached starch	INS 1403	
Oxidized starch	INS 1404	
Enzyme treated starch	INS 1405	
Monostarch phosphate	INS 1410	
Distarch phosphate	INS 1412	
Phosphated distarch phosphate	INS 1413	
Acetylated distarch adipate	INS 1414	
Starch acetate	INS 1420	
Acetylated distarch adipate	INS 1422	
Hydroxypropyl starch	INS 1440	
Hydroxypropyl distarch phosphate	INS 1442	
Starch sodium octenylsuccinate	INS 1450	
Acetylated oxidized starch	INS 1451	
Xanthan gum	INS 415	

Insert a new clause after clause **5.2.10** as follows.

"**5.2.11** *Sweeteners*

Sorbitol	INS 420	Limited by GMP
Mannitol	INS 421	
Isomalt	INS 953	
Maltitol	INS 965	
Lacitol	INS 966	
Xylitol	INS 967	
Erythritol	INS 968	
Neotame	INS 961	(12 mg/ kg, max)
Sucralose	INS 955	(450 mg/ kg, max)
Steviol glycoside	INS 960	(120 mg/ kg, max as Steviol equivalents)"

Page 8

Clause **8.1**

Insert a new item after the item "m" as follows.

"n) The product containing sweeteners shall be declared as "ENERGY REDUCED CHILLI SAUCE/ ENERGY REDUCED SWEET CHILLI SAUCE/ ENERGY REDUCED MIXED CHILLI SAUCE/ ENERGY REDUCED GREEN CHILLI SAUCE" as appropriate and carry a statement "NOT RECOMMENDED FOR CHILDREN UNDER 3 YEARS OF AGE".

AMENDMENT NO: 2 TO SLS 581: 2008

SPECIFICATION FOR CHILLI SAUCE
(First Revision)

EXPLANATORY NOTE

This amendment is issued after a decision taken by the Working group on Processed Fruits and Vegetables in order to be in line with Food (Preservatives) Regulation, 2019 under the Food Act 26 of 1980 and, also to allow food additives permitted under CODEX General Standard on Food Additives (GSFA).

AMD 570

Amendment No: 2 Approved on 2022-07-07 to SLS 581: 2008

SPECIFICATION FOR CHILLI SAUCE
(First Revision)

Page 5
Clause 5.2.8
Replace the word "Benzoates" using the word "Propionates".

Page 6
Clause 5.2.10
Insert following below Xanthan gum.
"Cross-linked sodium carboxymethyl cellulose (Cross-linked-cellulose gum)
INS 468 – GMP"

Insert new clause as follows after clause 5.2.10.
"**Clause 5.2.11**
Acidity regulators

Sodium hydrogen citrate	INS 331(i)	GMP"
Trisodium citrate	INS 331(iii)	

Page 7
TABLE 1
Replace Si No v), vi) and vii) of Table 1 as follows.

Sl No	**Characteristic**	**Requirement**				**Method of test**
		Chilli sauce	**Sweet chilli sauce**	**Mixed chilli sauce**	**Green chilli sauce**	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
v)	Sulphites, mg/ kg, max.	300	300	300	300	Appendix D
vi)	Sorbates, mg/ kg, max.	1000	1000	1000	1000	Appendix E
vii)	Propionates, mg/ kg, max.	GMP	GMP	GMP	GMP	--

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