# SRI LANKA STANDARD 1563: 2017

UDC 664.5

# SPECIFICATION FOR
# CHILLIE, WHOLE AND GROUND

SRI LANKA STANDARDS INSTITUTION

**Sri Lanka Standard**
# SPECIFICATION FOR CHILLIE, WHOLE AND GROUND

**SLS 1563: 2017**
**(**Superseding SLS 117 and SLS 853**)**
(Attached AMD 527)

**Gr. 7**


**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 CHILLIE, WHOLE AND GROUND

## FOREWORD

This Standard was approved by the Sectoral Committee on Food Products and authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 2017-07-21.

This Standard supersedes **SLS 117**: Ground chillies and **SLS 853**: Dried whole chillies.

Chillies are one of the important and commonly used materials for spicing in Sri Lankan cuisine. They are marketed as dry whole pods as well as in the ground form.

Sri Lanka Standards on chillies, whole and ground were originally issued in 1989 and 1971 as **SLS 853** and **SLS 117** respectively. It was decided to combine the requirements for whole and ground chillies into one Standard to align with the corresponding **ISO 972**. The categorization of chillies, whole into various grades has been removed and only a single specification has been prescribed for chillies, whole in this Standard. In addition to that, limits for heavy metals, limits for aflatoxins and microbiological limits have been included to safeguard the consumer.

This Standard is subject to the provisions of the Food Act No. 26 to 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 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 Standard.

In the preparation of this Standard the assistance derived from the related publications of the International Organization for Standardization (ISO) and the Bureau of Indian Standards is gratefully acknowledged.

## 1 SCOPE

This Standard prescribes the requirements and methods of sampling and test for chillies whole and ground forms.

Two main species of capsicum, *Capsicum annuum* L. and *Capsicum frutescens* L. and their sub species, *C. chinense*, *C. pubescens* and *C. pendulum* are covered by this Standard.

## 2 REFERENCES

Official methods of Analysis, Association of Official Analytical Chemists (AOAC) 20th edition, 2016

| | | |
|---|---|---|
| CS | 124 | Test sieves |
| SLS | 102 | Rules for rounding off numerical values |
| SLS | 143 | Code of practice for general principles of food hygiene |
| SLS | 186 | Methods of test for spices and condiments<br>Part 1: Preparation of ground sample for analysis<br>Part 2: Determination of extraneous matter and foreign matter content<br>Part 3: Determination of total ash<br>Part 4: Determination of acid insoluble ash<br>Part 5: Determination of moisture content – Entrainment method<br>Part 7: Determination of non-volatile ether extract<br>Part 8: Determination of filth<br>Part 12: Determination of degree of fineness of grinding – Hand sieving method (Reference method) |
| SLS | 310 | Method for the sampling of spices and condiments |
| SLS | 428 | Random sampling methods |
| SLS | 467 | Code of practice for labeling of prepackaged foods |
| SLS | 516 | Methods of test for microbiology of food and animal feeding stuffs<br>Part 2/ Section 2: Horizontal method for the enumeration of yeasts and moulds/ Colony count technique in products with water activity less than or equal to 0.95<br>Part 5: Horizontal method for the detection of *Salmonella* spp.<br>Part 12: Horizontal method for the detection and enumeration of presumptive *Escherichia coli* (Most probable number technique) |
| SLS | 827 | Microscopic examination of ground chilies |
| SLS | 1327 | Code of practice for spices and other dried aromatic plants |
| SLS | 1362 | Methods of test for agricultural food products<br>Part 1: Determination of crude fibre content – General method |

## 3 DEFINITIONS

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

**3.1 whole chillies:** Dried, ripen fruits or pods of species *Capsicum annuum* L and *Capsicum frutescens* L. and their sub species with or without stalks. These fruits have a characteristic colour ranging from red to orange and are either, oblong or conical, small and round pods containing yellow seeds

**3.2 ground chillies:** This includes following two categories;

**3.2.1** *chillie powder***:** Product in the form of a fine powder obtained from grinding of clean, dried, ripe, pungent pods of chillies with a characteristic colour ranging from red to orange without any added matter

**3.2.2** *chillie pieces***:** Product obtained from coarse grinding of clean, dried, ripe, pungent pods of chillies with a characteristic colour ranging from red to orange without any added matter

**3.3 unripe fruits:** Fruits not yet mature, the colour of which is considerably different from that of the batch under consideration. Generally the fruits are green or pale yellow in colour

**3.4 marked fruits:** Black or black-stained fruits

**3.5 broken fruits:** Fruits which are broken or split during handling and of which a part of the pod is missing

**3.6 fragments:** Small pieces of fruits coming from broken fruits

**3.7 discoloured fruits:** The pods which have patches of brown, black, white and/ or other colour or pods which are entirely of any one of these colours

**3.8 damaged fruits:** The pods distinctly identified as having been visibly affected by pests, heat, water, diseases or any other causative agent

**3.9 loose seeds:** The seeds which are not contained within the pod

**3.10 extraneous and foreign matter:** All materials other than chillie pods, pieces or powder. Extraneous matter includes leaves, loose stalks and stems of chillie. Extraneous matter does not include unripe, marked or broken fruits of the variety under consideration. Foreign matter includes other plant material, soil, sand metal particles

## 4 GENERAL REQUIREMENTS

### 4.1 Hygiene

The product shall be manufactured, processed, packaged, stored and distributed in accordance with the hygienic conditions prescribed in **SLS 143** and **SLS 1327**.

### 4.2 Aroma and flavour

Chillies whole and ground shall have the characteristic pungent aroma and flavour. It shall be free from foreign aroma and flavour including rancidity and mustiness.

### 4.3 Colour

Chillies whole and ground shall have its characteristic, uniform red to reddish brown colour. It shall be free from added colours.

### 4.4 Absence of moulds, insect infestation and animal excreta

Chillies whole and ground shall be free from mould growth, living and dead insects, insect fragments and animal excreta, visible to the naked eye (corrected, if necessary, for abnormal vision), or using the required magnifying instrument. If the magnification exceeds ×10, this fact shall be mentioned in the test report. The proportion of insect damaged matter shall not exceed 1 per cent *(m/m)*.

In case of disputes, the method given in **Part 8** of **SLS 186** shall be applied.

### 4.5 Absence of adulterants

No substance shall be added to or extracted from chillies whole and ground. The ground product shall be examined by the method given in **SLS 827**.

### 4.6 Extraneous matter

**4.6.1** *Whole chillie*

Extraneous matter shall not exceed 1 per cent by mass in whole chillie when examined visually by the method described in **Part 2** of **SLS 186**.

**4.6.2** *Ground chillie*

The product shall be examined by microscope and shall not contain any morphological extraneous matter.

### 4.7 Unripe, marked or broken fruits

In whole chillie, the proportion of unripe or marked fruits shall not exceed 2 per cent (*m/m*) and the proportion of broken fruits and fragments shall not exceed 4 per cent (*m/m*), when tested in accordance with the method given in Appendix **B**.

### 4.8 Stalks content

Whole chillie shall not contain more than 1.0 per cent by mass of loose stalks when tested by the method given in Appendix **B**.

Chillie pieces shall not contain more than 1.5 per cent by mass of chillie stalks when tested by the method given in Appendix **B**.

### 4.9 Particle size

**4.9.1** Chillie powder shall be sufficiently ground such that a minimum of 90 per cent by mass of it passes through a sieve of 500 µm aperture size conforming to **CS 124** when determined by the method specified in **Part 12** of **SLS 186**.

**4.9.2.** Chillie pieces shall be coarse ground material such that not less than 80 per cent by mass of the material is retained on a sieve of 500 µm aperture size and 100 per cent by mass of the material shall pass through a sieve of 4000 µm aperture size conforming to **CS 124** when determined by the method specified in **Part 12** of **SLS 186**.

### 4.10 Other requirements

Chillies whole or ground shall also conform to the requirements given in Table **1** when tested according to the methods given in Column **5** of the table.

**TABLE 1 - Chemical requirements for chillie, whole and ground**

| Sl No. | Characteristic | Requirement | | Method of test |
|---|---|---|---|---|
| | | Whole | Ground | |
| (1) | (2) | (3) | (4) | (5) |
| i) | Moisture per cent by mass, max. | 11.0 | 11.0 | **SLS 186: Part 5** |
| ii) | Total ash, per cent by mass, on dry basis, max. | 8.0 | 8.0 | **SLS 186: Part 3** |
| iii) | Acid insoluble ash, per cent by mass, on dry basis, max. | -- | 1.3 | **SLS 186: Part 4** |
| iv) | Non-volatile ether extract, per cent by mass, on dry basis, min. | -- | 12.0 | **SLS 186: Part 7** |
| v) | Crude fibre, per cent by mass, on dry basis, max. | -- | 28.0 | **SLS 1362: Part 1** |
| vi) | Damaged and discoloured fruits per cent by mass, max. | 5.0 | -- | **Appendix B** |
| vii) | Loose seeds, per cent by mass, max. | 2.0 | -- | **Appendix B** |

### 4.11 Microbiological limits

Chillie pieces and powder shall conform to the limits given in Table **2** when tested according to the methods given in Column **4** of the table.

**TABLE 2 – Microbiological limits for ground chillie**

| Sl No. (1) | Test organism (2) | Limit (3) | Method of test (4) |
|---|---|---|---|
| i) | *Escherichia coli*, MPN, per g | Absent | **SLS 516: Part 12** |
| ii) | *Salmonella*, in 25 g | Absent | **SLS 516: Part 5** |
| iii) | Moulds, cfu, per g, max. | $10^3$ | **SLS 516: Part 2/ Section 2** |

### 4.12 Contaminants

#### 4.12.1 *Aflatoxins*

The product shall not exceed the level 5.0 µg/ kg for aflatoxin $B_1$ and 10.0 µg/ kg for total aflatoxins, when determined according to the method given in **968.22** of **AOAC**.

#### 4.12.2 *Pesticide residues*

Whole chillie shall be cultivated and processed with special care under Good Agricultural Practices and Good Manufacturing Practices, so that residues of those pesticides which may

be required in the production do not remain or if practically unavoidable, are reduced to the maximum extent possible.

**NOTE**
*It is not necessary to carry out this determination as a routine for all the samples. This should be tested in case of dispute and when required by the purchaser or vendor or when there is any suspicion of pesticide contamination.*

## 5 PACKAGING

The packaging material which comes into contact directly with the product shall be sufficiently inert to preclude substances from being transferred to food in quantities large enough to endanger human health or to bring about an unacceptable change in the composition of the product or deterioration in its organoleptic properties.

### 5.1 Bulk containers

Chillies whole shall be packaged in suitable, clean and sound bags, packages or containers made of a material which shall not affect the product and which protects the product from the ingress of moisture and egress of volatile matter.

### 5.2 Retail containers

Chillies whole or ground shall be packaged in suitable, air-tight, food grade containers which shall be strong enough to withstand pressure in handling.

## 6 MARKING AND/ OR LABELLING

**6.1** The following shall be marked or labeled legibly and indelibly on each package or container:

a) The common name of the product as “Dried whole chillie”, "chillie powder" or "chillie pieces";
b) Brand name or trademark if any;
c) Net mass in “g” or “kg”;
d) Name and address of the manufacturer and packer or distributor;
e) Name and address of the producer or trader (in case of whole chillie in bulk packages);
f) Batch or code number or decipherable code marking;
g) Date of manufacture (in case of retail packages);
h) Year of harvest or date of packaging (in case of whole chillie in bulk packages);
j) Date of expiry;
k) In case where chillie whole or ground is imported in bulk and repackaged, the date of repackaging;
m) Country of origin, in case of imported products; and
n) Instructions for storage and handling, if any.

**6.2** Marking and labeling shall be in accordance with the **SLS 467**.

## 7 SAMPLING

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

## 8 METHODS OF TEST

Chillie shall be tested for ascertaining conformity of the material to the requirements of this Standard by the methods of test given in Appendix **B** of this standard **Part 1**, **Part 2**, **Part 3**, **Part 4**, **Part 5**, **Part 7**, **Part 8** and **Part 12** of **SLS 186**, **Section 2** of **Part 2**, **Part 5** and **Part 12** of **SLS 516**, **SLS 827** and Official Methods of Analysis of the Association of Official Analytical Chemists (**AOAC**), 20th Edition, 2016.

## 9 CRITERIA FOR CONFORMITY

**9.1** Each container examined as in clause **A.6.1** satisfies the packaging, marking and / or labeling requirements.

**9.2** Each container examined as in **A.6.2** satisfies the relevant requirements given in Clauses **4.2** and **4.3**.

**9.3** Each container tested as in **A.6.3** satisfies the requirement for moisture given in Clause **4.10**.

**9.4** The composite sample tested as in **A.6.4** satisfies the requirements given in Clauses **4.4**, **4.5**, **4.6**, **4.7**, **4.8**, **4.9**, **4.10** and **4.12**.

**9.5** Each sample tested from chillie ground as in **A.6.5** satisfies the requirements given in Clause **4.11**.

## APPENDIX A
## SAMPLING

### A.1 LOT

In any consignment all the containers 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** Precautions shall be taken to protect the samples, the product being sampled and the sample container from 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 size 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

Samples shall be tested from each lot for ascertaining its conformity to the requirements of this Standard.

### A.3.1 Sampling of whole chillie from bulk containers

**A.3.1.1** Representative samples of the product for ascertaining conformity to the requirements of this Standard shall be drawn in accordance with **SLS 310.**

### A.3.2 Sampling of whole or ground chillie from retail containers

**A.3.2.1** The number of retail containers to be selected from a lot shall be in accordance with Table **3**.

**TABLE 3 - Scale of sampling**

| **No of retail containers in the lot** (1) | **No of containers to be selected** (2) |
|---|---|
| Up to 280 | 10 |
| 281 to 500 | 12 |
| 501 to 1200 | 15 |
| 1201 and above | 20 |

**A.3.2.2** The retail containers 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.3.3 Sampling of ground chillie from bulk containers

Samples shall be taken from all bulk containers in the lot.

## A.4 PREPARATION OF SAMPLES

### A.4.1 Samples from retail containers

Sufficient quantity of material shall be drawn from each container selected as in **A.3.2.1** and mixed to form a composite sample of at least 1200 g whole chillie or 700 g ground chillie as applicable and the composite sample thus obtained shall be transferred to a sealed air-tight sample container.

### A.4.2 Samples from bulk containers

Sufficient quantity of material shall be drawn from five different places of each bulk container using an appropriate sampling instrument and mixed to form a composite sample of at least 1200 g whole chillie or 700 g ground chillie as applicable. The sample thus obtained shall be transferred to a sample container and sealed air-tight.

**A.4.3** Samples for determination of total ash in whole chillie shall be prepared in accordance with **Part 1** of **SLS 186**.

## A.5 REFERENCE SAMPLES

If a reference sample is required the size of the sample to be taken shall be three times the size given in **A.3.1**, **6.3.1** or **6.3.2** and the sample so obtained shall be divided into three equal parts using coning and quartering method. Samples shall be transferred into three sample containers and sealed air-tight. One such sample shall be marked for the purchaser, one for the supplier and the third shall be kept at a place agreed to between the purchaser and the supplier to be used in case of dispute.

## A.6 NUMBER OF TESTS

**A.6.1** Each container selected as in **A.3.1**, **A.3.2** or **A.3.3** shall be inspected for packaging and marking and/ or labeling requirements.

**A.6.2** Each container selected as in **A.3.1**, **A.3.2** or **A.3.3** shall be inspected for the requirements given in **4.2** and **4.3**.

**A.6.3** Samples drawn from each container selected as in **A.3.1**, **A.3.2** or **A.3.3** shall be tested individually for moisture content.

**A.6.4** The composite sample obtained as in **6.3.1** or **6.3.2** shall be tested for the requirements given in **4.4** to **4.10** and **4.12** except for the moisture content.

**A.6.5** A sub sample, each compositing 03 containers shall be drawn from the containers selected as in **A.3.2** or **A.3.3** and tested for microbiological limits (*see* **4.11)**.

# APPENDIX B
# DETERMINATION OF STALKS CONTENT/ UNRIPE, MARKED OR BROKEN FRUITS AND FRAGMENTS/ DAMAGED AND DISCOLOURED FRUITS AND LOOSE SEEDS

## B.1 APPARATUS

**B.1.1** *Analytical balance*, of sensitivity 0.1 g

**B.1.2** *Magnifying lens*, having a magnification of 10

**B.1.3** *Forceps*, of about 100 mm in length

**B.1.4** *White paper*

**B.1.5** *Watch glasses*

## B.2 PROCEDURE

Mix the material thoroughly. Obtain a representative sample of approximately 25 g, weigh to the nearest milligram. Spread the sample on a white sheet of matt paper. Separate the stalks, unripe fruits, marked fruits, broken fruits and fragments, damaged and discoloured fruits and loose seeds from the material using the magnifying glass and transfer to dry tared separate watch glasses. Separately weigh the watch glasses which contain materials to the nearest 0.1 gram.

Calculate the percentage of each material using the expressions given below.

## B.3 CALCULATION

$$\text{Stalks content, per cent by mass} = \frac{m_1}{m_o} \times 100$$

$$\text{Unripe fruits, per cent by mass} = \frac{m_2}{m_o} \times 100$$

$$\text{Marked fruits, per cent by mass} = \frac{m_3}{m_o} \times 100$$

$$\text{Broken fruits and fragments, per cent by mass} = \frac{m_4}{m_o} \times 100$$

$$\text{Damaged and discoloured fruits, per cent by mass} = \frac{m_5}{m_o} \times 100$$

$$\text{Loose seeds, per cent by mass} = \frac{m_6}{m_o} \times 100$$

where,

$m_o$ is the mass, in grams, of the sample taken;
$m_1$ is the mass, in grams, of stalks;
$m_2$ is the mass, in grams, of unripe fruits;
$m_3$ is the mass, in grams, of marked fruits;
$m_4$ is the mass, in grams, of broken fruits and fragments;
$m_5$ is the mass, in grams, of damaged and discoloured fruits; and
$m_6$ is the mass, in grams, of loose seeds.

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**AMD 527**

**Amendment No: 1 Approved on 2020-05-05 to SLS 1563: 2017**

# AMENDMENT NO: 1 TO SLS 1563: 2017
# SRI LANKA STANDARD SPECIFICATION FOR CHILLIE, WHOLE AND GROUND

## EXPLANATORY NOTE

This amendment is issued after a decision taken by the Working group on Spices in order to amend the foreword, definitions, requirements and the sampling clause.

**Amendment No: 1 Approved on 2020-05-05 to SLS 1563: 2017**

**AMENDMENT NO: 1 TO SLS 1563: 2017**
**SRI LANKA STANDARD SPECIFICATION FOR CHILLIE, WHOLE AND GROUND**

**Page 3**
**Foreword,** Paragraph 4, Line 6
Delete the words "limits for heavy metals".

**Page 4**
**Clause 3.2.1,** Line 2
Replace the term "orange", by the term "reddish brown".

**Page 6**
**Clause 4.6**
Insert the words "and foreign matter", after the words "Extraneous matter".

**Clause 4.6.1,** Line 1
Insert the words "and foreign matter", after the words "Extraneous matter".

**Clause 4.6.2,** Line 2
Insert the words "and foreign matter", after the words "extraneous matter".

**Page 7**
**Table 2,** Serial no iii), Column (3)
Replace the limit "$10^{3}$", by the limit "$10^{4}$".

**Page 11**
**Clause A.5**, Line 2
Replace "**6.3.1**" and "**6.3.2**" by "**A.3.2**" and "**A.3.3**" respectively.

**Clause A.6.4,** Line 1
Replace "**6.3.1**" and "**6.3.2**" by "**A.3.1**" and "**A.3.2**" respectively.

**Clause A.6.5,** Line 1
Delete the words "each compositing" and substitute by "of"

Line 2
Insert the term "individually" after the term "and".

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