
**Chillies and capsicums, whole or ground
(powdered) — Specification**

*Piments dits «piments enragés» et piments forts, entiers ou en poudre —
Spécifications*



Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 972 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Subcommittee SC 7, *Spices and condiments*.

This second edition cancels and replaces the first edition (ISO 972:1985), which has been technically revised.

Annex A forms an integral part of this International Standard. Annexes B and C are for information only.

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Introduction

Whole chillies and capsicums contain pungent components made up of capsaicinoids. The amount of pungent components present widely varies from one variety to another.

As dimensions, shape and colour vary widely, classification based on these parameters is not of much significance in international trade.

Whole chillies and capsicums are also not generally bought on the basis of capsaicinoids content, but on established origin types suitable to a specific importer. Colour and size are also parameters which may come into consideration in international trade. However, the detailed requirements of the importer require the checking of each consignment, since capsaicinoid content, colour and size vary widely between consignments and from crop to crop. In international trade, a rough differentiation is made between chillies and capsicums on purely size basis, varieties above 25 mm in length being considered a capsicum. However, it is also accepted that many varieties classified as capsicums may have a capsaicinoid content (heat strength) higher than those specified for certain chilli varieties.

Consequently, no limits of capsaicinoid content are laid down to differentiate between chillies and capsicums although as a general principle it may be taken that capsicums have a lower capsaicinoid content (heat strength).

ISO 3513 gives details for determining the pungency in the form of the Scoville index. Determination of the capsaicinoid content by a spectrometric method and an HPLC method are given in ISO 7543-1 and 7543-2 respectively.

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1 Scope

This International Standard specifies requirements for chillies and capsicums in the whole or ground (powdered) form.

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

This International Standard does not apply to "chili powder" (see also note under 4.2) and paprika (see ISO 7540).

Recommendations relating to conditions of storage and transport are given in annex B.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 927:1982, *Spices and condiments - Determination of extraneous matter content.*

ISO 928: — 1), *Spices and condiments - Determination of total ash.*

ISO 930: — 2), *Spices and condiments - Determination of acid-insoluble ash.*

ISO 939:1979, *Spices and condiments - Determination of moisture content - Entrainment method.*

ISO 948:1980, *Spices and condiments - Sampling.*

ISO 1208:1982, *Spices and condiments - Determination of filth.*

ISO 2825:1981, *Spices and condiments - Preparation of a ground sample for analysis.*

1) To be published. (Revision of ISO 928:1980)

2) To be published. (Revision of ISO 930:1980)

3 Definitions

For the purposes of this International Standard, the following definitions apply.

- 3.1 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.
- 3.2 marked fruits:** Black or black-stained fruits.
- 3.3 broken fruits:** Fruits which are broken during handling and of which a part of the pod is missing.
- 3.4 fragments:** Small pieces of fruits coming from broken fruits.

4 Description

4.1 Chillies and capsicums are the dried pods (fruits) of plants of the genus *Capsicum*. In longitudinal cross-section, the pods are roughly triangular in shape, with the base of the triangle at the point of attachment to the peduncle (stalk). The angles within this triangular shape may vary widely, the angle opposite the point of attachment of the peduncle being generally very acute, but becoming obtuse in rare cases, depending on the species.

The pods contain varying numbers of yellow/white, hard, disc-like seeds, 1 mm to 5 mm in diameter. The number and size of the seeds depend on the species.

When mature, the seeds are attached individually to a relatively soft (spongy) central core within the pod by individual placenta (seed stalks), but in dried commercial chillies the seeds often become detached from the central core and move freely within the pods.

The placenta is known to contain the highest concentration of the pungent capsaicinoids.

The mature pods may vary in colour from dark blackish-red through orange-yellow to yellow-green, according to the species. The material pigmentation, particularly red, is affected by exposure to air and light during storage and the intensity decreases with time.

Dimensions may vary from 10 mm to 120 mm in length, and 4 mm to 50 mm in diameter, depending on the species.

4.2 Ground chillies and ground capsicums are the products obtained by grinding whole chillies and whole capsicums, respectively, without any added matter.

These products take the form of a powder of widely varying colour, from deep-red through orange-yellow to pale green, according to the species.

For the needs of international trade, the powder may be ground to any required particle size, according to agreement between the parties concerned. In general, the maximum particle size is 500 µm.

Mixtures of chillies and capsicums as blended powders are common in order to maintain a constant capsaicinoid content (heat strength) or desired colour.

NOTE -- "Chili powder" is the term usually applied to a blend of ground capsicums and other spices available as a homogeneous mix. The product and terminology originate in the USA. As a mixture of spices, "chili powder" is outside the scope of this International Standard.

5 Requirements

5.1 Odour and flavour

Chillies and capsicums, whole or ground (powdered), shall have a characteristic strong odour with an acrid note, causing nasal irritation.

The flavour shall be characteristic of chillies, producing a strong acrid burning sensation which is very persistent.

5.2 Freedom from insects, moulds, etc.

Chillies and capsicums, whole or ground (powdered), shall be free from live insects and moulds, and practically free from dead insects, insect fragments and rodent contamination visible to the naked eye (corrected, if necessary, for abnormal vision), or with such magnification as may be necessary in any particular case. If the magnification exceeds $\times 10$, this fact shall be mentioned in the test report.

In cases of dispute, the contamination shall be determined by the method specified in ISO 1208.

5.3 Extraneous matter

Extraneous matter includes:

- a) all matter present in the sample which is not from chillies or capsicums of the variety under consideration;
- b) all other foreign matter and, in particular, stalks, leaves, soil and sand.

Extraneous matter does not include unripe, marked or broken fruits of the variety under consideration (see 5.4).

The proportion of extraneous matter, when determined by the method described in ISO 927, shall not exceed 1 % (*m/m*).

5.4 Unripe, marked and broken fruits

In whole chillies and capsicums, the proportion of unripe or marked fruits shall not exceed 2 % (*m/m*) and the proportion of broken fruits and fragments shall not exceed 5 % (*m/m*), when tested in accordance with the method described in annex A.

5.5 Chemical requirements

Whole or ground (powdered) chillies and capsicums shall comply with the requirements given in table 1.

Table 1 - Chemical requirements

| Characteristic | Requirement | Test method |
|---|-------------|-------------|
| Moisture content, % (<i>m/m</i>), max. | 11 | ISO 939 |
| Total ash, % (<i>m/m</i>) on dry basis, max. | 10 | ISO 928 |
| Acid-insoluble ash, % (<i>m/m</i>) on dry basis, max. | 1,6 | ISO 930 |

5 Sampling

Sampling shall be carried out as specified in ISO 948.

7 Test methods

Samples of whole chillies and capsicums and ground (powdered) chillies and capsicums shall be analysed to ensure conformity with the requirements of this International Standard by following the methods of physical and chemical analysis specified in 5.2 to 5.5, table 1 and annex A.

Prepare a ground sample in accordance with ISO 2825.

The particle size of the powder to be analysed shall be such that the proportion that passes through a sieve of nominal aperture size 500 µm shall not be less than 95 %.

8 Packing and marking

8.1 Packing

The product shall be packed in clean and sound containers made of a material which does not affect the product but which protects it from the ingress or loss of moisture and volatile matter.

The packaging shall also comply with any national legislation relating to environmental protection.

8.2 Marking

The following particulars shall be marked directly on each package or shall be marked on a label attached to the package:

- a) name of the product and tradename, if any;
- b) name and address of the producer or packer, and trademark, if any;
- c) code or batch number;
- d) net mass;
- e) producing country;
- f) any other information requested by the purchaser, such as the year of harvest and the date of packing (if known);
- g) reference to this International Standard.

Annex A (normative)

Determination of unripe fruits, marked fruits, and broken fruits and fragments

A.1 Spread out the sample, the extraneous matter of which has been removed (as specified in ISO 927) on a white sheet of matt paper. Segregate the unripe fruits, the marked fruits, and the broken fruits and fragments by physical separation.

A.2 Weigh separately, to the nearest 0,1 g, these three categories of defective fruits. The masses m_0 , m_1 and m_2 are obtained for unripe, marked, and broken fruits and fragments, respectively. Their percentages are calculated from the expressions given below.

A.2.1 Unripe fruits:

$$\frac{m_0}{M} \times 100$$

A.2.2 Marked fruits:

$$\frac{m_1}{M} \times 100$$

A.2.3 Broken fruits and fragments:

$$\frac{m_2}{M} \times 100$$

where

- M is the mass, in grams, of the initial sample;
- m_0 is the mass, in grams, of unripe fruits;
- m_1 is the mass, in grams, of marked fruits;
- m_2 is the mass, in grams, of broken fruits and fragments.

Annex B

(informative)

Recommendations relating to storage and transport conditions

B.1 Packages of chillies and capsicums should be stored in covered premises, well protected from the sun, rain and excessive heat.

B.2 The storeroom should be dry, free from unpleasant odours, and protected against entry of insects and other vermin. Ventilation should be adjusted in such a way as to give good ventilation during dry weather and to be fully closed under damp conditions. Suitable provisions should be made for fumigation of storerooms.

B.3 Packages should be handled and transported in such a way that they are protected from the rain, sun or other sources of excessive heat, unpleasant odours and any other contamination (especially in the holds of ships).

Annex C (informative)

Bibliography

- [1] ISO 3513:1995, *Chillies - Determination of Scoville index.*
- [2] ISO 7540:1984, *Ground (powdered) paprika (Capsicum annum Linnaeus) - Specification.*
- [3] ISO 7543-1:1994, *Chillies and chilli oleoresins - Determination of total capsaicinoid content - Part 1 : Spectrometric method.*
- [4] ISO 7543-2:1993, *Chillies and chilli oleoresins - Determination of total capsaicinoid content - Part 2 : Method using high-performance liquid chromatography.*