INTERNATIONAL STANDARD

ISO 7540

Second edition
2006-11-01

Ground paprika (*Capsicum annuum* L.) — Specification

*Paprika (*Capsicum annuum *L.) en poudre — Spécifications*

Reference number
ISO 7540:2006(E)

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Published in Switzerland

Contents

Page

Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 7540 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 7, *Spices and condiments*.

This second edition cancels and replaces the first edition (ISO 7540:1984), which has been technically revised.

Introduction

Paprika (*Capsicum annuum* L.) originates from South America. The plant arrived in Europe after the discovery of the American continent (1492) and spread across the world in subsequent centuries.

Until the turn of the 19th century, the pungent ground (powdered) paprika was mainly known as a medicine. Shepherds used it as a spice, and this use became wider when cultivation of the sweet (non-pungent) varieties was developed.

Ground paprika plays an important role mainly in those countries where so-called fatty meals are preferred. The taste and natural colouring compounds of ground paprika improve the hedonic value of this type of meal. In addition, part of the natural carotene content of paprika is provitamin A, therefore the natural unsaturated oil content has a heart stimulant effect and the pungent varieties promote digestion.

Food industries use ground paprika in large amounts when producing meat products such as salamis and sausages. It is also used as a spice constituent of dried soups and is added to cheese, chips and spice mixtures.

Ground paprika (*Capsicum annuum* L.) — Specification

1 Scope

This International Standard defines the requirements for ground paprika.

A method for the determination of the moisture content of ground paprika is given in Annex A. Recommendations relative to storage and transport conditions are given in Annex B. A list of terms used in different countries for paprika (*Capsicum annuum* L.) is given in Annex C.

This International Standard is not applicable to ground chillies and capsicums.

NOTE Specifications for ground chillies and capiscums are given in ISO 972.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 928, *Spices and condiments — Determination of total ash*

ISO 930, *Spices and condiments — Determination of acid-insoluble ash*

ISO 1108, *Spices and condiments — Determination of non-volatile ether extract*

ISO 7541, *Ground (powdered) paprika — Determination of total natural colouring matter content*[1)]

ISO 7542, *Ground (powdered) paprika (Capsicum annuum Linnaeus) — Microscopical examination*

ASTA Analytical Methods 21.3:1998, *Pungency of Capsicums and Their Oleoresins (HPLC method)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
extraneous matter
substances not belonging to the *Capsicum annuum* L. plant, and part of plants other than the fruits of *Capsicum annuum* L.

3.2
additives
materials helping to maintain the original quality of the products without hazardous effect on human health

1) To be revised according to ASTA 21.3.

3.3
adulterants
materials added to improve the low quality of the product or to mask its defects

EXAMPLES Natural and artificial colouring agents, oleoresins, tomato powder, saccharin.

4 Specifications

4.1 Description

Ground paprika is the product obtained by grinding the ripe dried fruits of different varieties of *Capsicum* (e.g. *Capsicum annuum* L. var. *longum*, *Capsicum annuum* L. var. *grossum*, *Capsicum annuum* L. var. *abbreviatum*, *Capsicum annuum* L. var. *typicum*) of the Solanaceae plant family.

Ground paprika is prepared from the pericarp and the seeds of the paprika fruit. It may contain a variable amount of other parts of the fruit, such as the placenta, the calyx and the stalk.

The colour of ground paprika varies, according to its quality, from vivid brilliant red through yellowish and brownish-red to pale reddish-brown.

Additives (see 3.2), allowed in accordance with the regulations of the target country and after agreement between buyer and seller (antioxidants, anti-caking agents, etc.), may be introduced into the ground paprika. In that case, the final product shall be labelled in accordance with current regulations.

Figure 1 — Hanging and standing-up types of fruits of *Capsicum annuum* L.

4.2 Taste and odour

The taste of ground paprika can be pungent or free from pungency; its odour shall be pleasantly aromatic.

Ground paprika shall be free of any off-tastes and off-odours, in particular musty or rancid ones, and from any foreign tastes and odours.

4.3 Presence of insects, moulds, etc.

Ground paprika shall be free from living insects, and practically free from dead insects, insect fragments, rodent contamination and moulds visible to the naked eye.

4.4 Extraneous matter

The proportion of permissible extraneous matter (see 3.1) present in the ground paprika shall be determined by microscopic examination in accordance with the method described in ISO 7542 and shall form the subject of an agreement between the buyer and the seller.

4.5 Adulterants

The ground paprika shall be free from adulterants (see 3.3).

4.6 Quality categories

Ground paprika is mainly graded as a function of its colour, which can be

— the extractable colour, expressed in ASTA[2)] colour units according to ISO 7541, or

— the visible colour, assessed by comparison with a reference sample,

as well as of its degree of pungency, and physical and chemical characteristics (see Table 1).

Table 1 — Physical and chemical specifications

Characteristic	Specifications				Test method
	Categories				
	I	II	III	IV	
Natural colouring matter, in ASTA colour units (minimum values)	120	100	80	60	ISO 7541
Capsaicin content, µg/g (maximum values)	30[a]	30[a]	30[a]	30[a]	ASTA 21.3
Scoville value (µg/g × 15)	450	450	450	450	
Moisture content, mass fraction, % (maximum value)	11	11	11	11	See Annex A
Total ash, on dry basis, mass fraction, % (maximum value)	8,0	8,0	8,5	10,0	ISO 928
Acid-insoluble ash, on dry basis, mass fraction, % (maximum value)	0,6[b)]	0,7[b)]	0,9[b)]	1,0[b]	ISO 930
Non-volatile ether extract, on dry basis, mass fraction, % (maximum value)	17,0	17,0	20,0	25,0	ISO 1108

[a] Above this value the ground paprika is pungent. If pungency is required, its degree should be the subject of the agreement between the buyer and the seller.

[b] If the product contains an anti-caking agent, this value is allowed to be higher by 1 %.

2) ASTA: American Spices Trade Association.

5 Test methods

The samples of ground paprika shall be analysed in order to ascertain their conformity to the specifications of this International Standard by following the test methods referred to in 4.6 and Table 1.

6 Contaminants

The Codex Alimentarius Commission has not yet published provisions for maximum limits of contaminants (heavy metals, pesticide residues, mycotoxins, etc.) of ground paprika. However, progress in this field is continuous, therefore it is advisable to check whether or not new limit(s) for contaminant(s) is/are published.

The European Commission (EC) regulated the maximum levels of some mycotoxins as follows: 5,0 µg aflatoxin B_1 per kilogram of ground paprika and 10,0 µg total aflatoxin per kilogram of ground paprika[1], [2].

However, national regulation in various other countries may be different from the EC regulation, so it is advisable to take into account the relevant food safety legislation in force in the target country in delivery contracts.

7 Hygienic requirements

7.1 It is recommended that the ground paprika be prepared in accordance with the appropriate sections of the Recommended International Code of Practice — General Principles of Food Hygiene[3] and the Code of Hygienic Practice for Spices and Dried Aromatic Plants[4].

7.2 The product

— shall be free from microorganisms in amounts which may represent a hazard to health; more detailed requirements should be specified in the contract made between the seller and the buyer,

— shall be free from parasites which may represent a hazard to health, and

— shall comply with relevant food safety legislation in force in the target country.

ISO 15161[5] is recommended for developing an adequate quality management system including hygienic requirements, and ISO 22000[6] is recommended for developing a food safety management system.

8 Packaging, marking or labelling

8.1 Packaging

The ground paprika shall be packed in new, sound, clean, sealed packaging made of material which cannot affect the colour of the product. The packaging material should be impervious to fat and to aroma (e.g. plastic bags, new jute sacks lined with plastic material, or tin-plate containers).

8.2 Marking

8.2.1 Each package shall be marked or labelled with the following particulars:

a) name of the product (botanical name and type of presentation), and trade name or brand name, where appropriate;

b) quality category, pungency;

c) batch number;

d) net mass;

e) shelf-life of the product;

f) name and address of the producer;

g) name and address of the packer, if it is other than the producer;

8.2.2 Marking or labelling may also contain the following particulars:

a) name of the country from where the product is originated;

b) producing area of the country from where the product originated;

c) any other indications requested by the buyer;

d) reference to this International Standard if the product fulfils its specifications.

Annex A
(normative)

Determination of moisture content

A.1 Introduction

This annex specifies an oven-drying method for the determination of the moisture content of ground paprika.

A.2 Principle

A test portion of ground paprika is dried at 95 °C ± 2 °C in an oven at atmospheric pressure, until practically constant mass is reached.

A.3 Apparatus

Usual laboratory apparatus and, in particular, the following.

A.3.1 Electric oven, with thermostatic control and good natural ventilation, capable of being regulated so that the temperature of the air and of the shelves in the neighbourhood of the test portions lies between 93 °C and 97 °C in normal operation.

A.3.2 Flat-bottomed vessel, either of metal or glass.

If metal is used, it shall be resistant to attack under the test conditions. The vessel shall be provided with a well-fitting lid, and shall allow the test portion to be spread to about 0,3 g/cm^3 (e.g. a vessel of diameter 50 mm and height 30 mm to 40 mm). Glass vessels with ground closures may also be used.

A.3.3 Analytical balance, capable of weighing to the nearest 0,001 g.

A.3.4 Desiccator, containing an effective desiccant such as anhydrous calcium chloride or silica gel, and provided with a ceramic plate which allows vessels (A.3.2) to cool rapidly.

A.4 Sampling

A representative sample should have been sent to the laboratory. It should not have been damaged or changed during transport or storage.

Sampling is not part of the method specified in this International Standard. A recommended sampling method is given in ISO 948[7].

A.5 Procedure

A.5.1 Test portion

Dry the open vessel with its lid (A.3.2) for 1 h at 95 °C in the oven (A.3.1). Close the vessel and cool it in the desiccator (A.3.4), then weigh it to the nearest 0,001 g (A.3.3).

Rapidly weigh, to the nearest 0,001 g, a quantity of 5 g ± 1 g of the homogenized ground paprika in the dried vessel (A.3.2). Spread the ground paprika evenly over the whole base of the vessel and close the vessel with its lid.

Carry out these operations as quickly as possible to avoid any appreciable change in moisture content.

A.5.2 Determination

Place the open vessel containing the test portion (A.5.1), together with the lid, in the oven (A.3.1) set at 95 °C. Close the oven and dry the test portion for 4,5 h, timing from the moment the oven temperature is again between 93 °C and 97 °C.

Do not open the door of the oven during drying and do not place moist products in the oven before removing the dry test portions, as this will result in partial rehydration of the latter.

At the end of drying, quickly take the vessel out of the oven, cover with its lid and place it in the desiccator (A.3.4). As soon as the vessel has cooled to laboratory temperature (generally this takes about 30 min), weigh it to the nearest 0,001 g.

Carry out two determinations on the same test sample.

A.6 Expression of results

The moisture content, w, expressed as a mass fraction in percent of the ground paprika as received, is calculated by the following equation:

$$w = \frac{m_1 - m_2}{m_1 - m_0} \times 100\ \%$$

where

m_0 is the mass of the vessel, in grams;

m_1 is the mass of the vessel and the test portion before drying, in grams;

m_2 is the mass of the vessel and the test portion after drying, in grams;

Take as the result the arithmetic mean of the two determinations (A.5.2) if the difference between the results is smaller than 0,2 % (mass fraction). Otherwise, repeat the determination on two other test portions.

Report the result to one decimal place.

A.7 Repeatability

The absolute difference between two independent single test results, obtained using the same method on identical test material in the same laboratory by the same operator using the same equipment within a short interval of time, will in not more than 5 % of cases be greater than 0,2 % of the arithmetic mean of the two results.

A.8 Test report

The test report shall specify:

a) all information necessary for the complete identification of the sample;

b) the sampling method used, if known;

c) the test method used, with reference to this annex;

d) all operating details not specified in this annex, or regarded as optional, together with details of any incidents which may have influenced the test result(s);

e) the test result(s) obtained or, if the repeatability has been checked, the final quoted result obtained.