

ICS 67.220.10

DMS 1290:2016  
First edition

**DRAFT MALAWI STANDARD**

**Ground paprika (*Capsicum annum* L.) –  
Specification**

**NOTE** – This is a draft proposal and shall neither be used nor regarded as a Malawi standard

# Ground paprika (*Capsicum annum* L.) – Specification

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## FOREWORD

This draft Malawi standard has been prepared by MBS/TC 8, the Technical Committee on *Spices and condiments*, to provide requirements for ground paprika.

The standard is based on the International standard, ISO 7540:2006, *Ground paprika (Capsicum annum L.) – Specification*.

Acknowledgement is made for the use of the information.

## TECHNICAL COMMITTEE

This draft Malawi standard was prepared by MBS/TC 8, the Technical Committee on Spices and condiments, and the following companies, organizations and institutions were represented:

Blantyre City Council;  
Blantyre District Health Office (Ministry of Health);  
Blantyre ADD;  
Lilongwe University of Agriculture and Natural Resources (Bunda College Campus);  
Malawi Bureau of Standards;  
Nali Limited;  
Peoples Trading Centre;  
Rab Processors Ltd;  
Tajo Foods; and  
Unilever South East (Malawi) Ltd.

## NOTICE

*This standard shall be reviewed every five years, or earlier when it is necessary, in order to keep abreast of progress. Comments are welcome and shall be considered when the standard is being reviewed.*

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**DRAFT PROPOSAL**

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**Ground paprika (*Capsicum annum* L.) – Specification**

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**1 SCOPE**

This Malawi standard defines the requirements for ground paprika.

This standard is not applicable to ground chillies and capsicums.

**Note 1:** A list of terms used in different countries for paprika (*Capsicum annum* L.) is given in Annex C.

**Note 2:** Specifications for ground chillies and capsicums are given in ISO 972.

**2 NORMATIVE REFERENCES**

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent edition of the standard indicated below. Information on currently valid national and draft Malawi standards may be obtained from the Malawi Bureau of Standards.

MS 19, *Labelling of pre-packed foods – General standard*;

MS 21, *Food and food processing units – Code of hygienic conditions*;

MS 141, *Spices and condiments – Determination of total ash*;

MS 919, *Spices and condiments – Determination of acid-insoluble ash*;

MS 922, *Spices and condiments – Determination of non-volatile ether extract*;

MS 1297, *Ground (powdered) paprika – Microscopic examination*;

MS 1298, *Ground (powdered) paprika – Determination of total natural colouring content*; and

ASTA, *Analytical Methods 21.3:1998, Pungency of capsicums and their oleoresins (HPLC method)*.

**3 TERMS AND DEFINITIONS**

For the purposes of this standard, the following terms and definitions shall apply:

**3.1****extraneous matter**

substances not belonging to the *Capsicum annum* L. plant, and part of plants other than the fruits of *Capsicum annum* L.

**3.2****additives**

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

**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 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.

## 5 REQUIREMENTS

**Note:** Recommendations relative to storage and transport conditions are given in Annex B.

### 5.1 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.

### 5.2 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.

### 5.3 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 MS 1297 and shall form the subject of an agreement between the buyer and the seller.

## 5.4 Adulterants

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

## 5.5 Quality categories

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

- the extractable colour, expressed in ASTA<sup>1</sup> colour units according to MS 1298, 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	MS 1298
Capsaicin content, µg/g (maximum values)	30 <sup>a</sup>	30 <sup>a</sup>	30 <sup>a</sup>	30 <sup>a</sup>	ASTA 21.3
Scoville value (µg/g x 15)	450	450	450	450	
Moisture content, mass fraction, %, (maximum value)	11	11	11	11	Annex A
Total ash, on dry basis, mass fraction, %, (maximum value)	8.0	8.0	8.5	10.0	MS 141
Acid insoluble ash, on dry basis, mass fraction, % (maximum value)	0.6 <sup>b</sup>	0.7 <sup>b</sup>	0.9 <sup>b</sup>	1.0 <sup>b</sup>	MS 919
Non-volatile ether extract, on dry basis, mass fraction, % (maximum value)	17.0	17.0	20.0	25.0	MS 922

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

<sup>b</sup> If the product contains an anti-caking agent, this value is allowed to be higher than 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.

<sup>1</sup> STA: American Trade Spice Association

In the meantime, the European Commission (EC) maximum levels of some mycotoxins as follows: 5.0 µg aflatoxin B1 per kilogram of ground paprika and 10.0 µg total aflatoxin per kilogram of ground paprika <sup>[1]</sup>. <sup>[2]</sup> shall be applicable.

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 HYGIENE**

**7.1** It is recommended that the ground paprika be prepared and handled in accordance with the appropriate sections of MS 21 and the Code of hygienic practice for spices and dried aromatic plants <sup>[3]</sup>.

**7.2** The product shall:

- a) 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;
- b) be free from parasites which may represent a hazard to health; and
- c) comply with relevant food safety legislation in force in the target country.

ISO 15161<sup>[4]</sup> is recommended for developing an adequate quality management system including hygienic requirements, and ISO 22000<sup>[5]</sup> is recommended for developing a food safety management system.

## **8 TEST METHODS**

The samples of ground paprika shall be analysed in order to ascertain their conformity to the specifications of this standard by following the test methods referred to in **5.5** and table 1.

## **9 PACKAGING AND LABELLING**

### **9.1 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).

### **9.2 Labelling**

In addition to the requirements prescribed in MS 19, the following particulars shall be marked on each package or on a label attached to the package:

- 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) best before date;
- f) storage conditions;
- g) name and address of the producer;
- h) name and address of the packer, if it is other than the producer;
- i) name of the country from where the product is originated; and
- j) any other indications requested by the buyer.

**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  $95\text{ °C} \pm 2\text{ °C}$  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  $93\text{ °C}$  and  $97\text{ °C}$  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  $0.3\text{ g/cm}^3$  (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 Malawi standard. A recommended sampling method is given in ISO 948<sup>[6]</sup>.

**A.5 Procedure**

**A.5.1 Test portion**

Dry the open vessel with its lid (**A.3.2**) for 1 h at  $95\text{ °C}$  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  $5\text{ g} \pm 1\text{ g}$  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  $95\text{ °C}$ . Close the oven and dry the test portion for 4.5 h, timing from the moment the oven temperature is again between  $93\text{ °C}$  and  $97\text{ °C}$ .

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; and

$m_2$  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); and
- e) the test result(s) obtained or, if the repeatability has been checked, the final quoted result obtained.

**ANNEX B**  
(informative)

**RECOMMENDATIONS RELATING TO STORAGE AND TRANSPORT CONDITIONS**

**A.1** Ground paprika should be stored in dry and cool, covered premises, well protected from the sun, excessive heat and moisture.

**A.2** The warehouse should be dry, free from unpleasant odours, and protected against the ingress of insects and other vermin.

**A.3** The packages should be handled and transported in such a manner that they are protected from rain, from the sun or from other sources of excessive heat, from unpleasant odours and from all contamination (cross-infestation), especially in the holds of ships.

**ANNEX C**  
(informative)

**SELECTED LIST OF COMMON NAMES FOR CAPSICUM ANNUUM L. IN DIFFERENT LANGUAGES**

<b>Language</b>	<b>Common name</b>
Danish	Paprika
Dutch	Paprika
English	Paprika
Esperanto	Papriko
Estonian	Harilik paprika
Finnish	Ruokapaprika, Paprika
French	Piment annuel, Piment doux, Paprika de Hongrie, Piment doux d'Espagne
German	Paprika
Greek	Piperia
Hebrew	Paprika
Hindi	Deghi mirch
Hungarian	Fűszerpaprika-örlemény (with the categories különleges; csemege; édesnemes and rózsa)
Icelandic	Paprikuduft
Italian	Peperone, Paprica
Papiamento	Promenton, Promëntön
Persian	Felfele Ghermez
Portuguese	Pimentão doce
Polish	Paprika roczna
Romanian	Ardel
Spanish	Pimento, Pimento molido, Paprika
Swahili	Pilipili hoho
Swedish	Paprika
Tibetan	Sipen ngonpo, Si pan sngon po

## BIBLIOGRAPHY

[1] European Commission Regulation No. 472/2002 of 12 March 2002 amending regulation (EC) No. 466/2001 setting maximum levels for certain contaminants in foodstuffs. *Official Journal of the European Commission*, 16.3.2002

[2] EN 14123, *Foodstuffs – Determination of aflatoxin B1 and the sum of aflatoxin B1, B2, G1 and G2 in peanuts, pistachios, figs and paprika powder – High performance liquid chromatographic method with postcolumn derivatization and immunoaffinity column clean-up*

[3] Codex Alimentarius Commission/RCP 22-1979, *Code of Hygienic Practice for Spices and Dried Aromatic Plants*

[4] ISO 15161, *Guidelines on the application of ISO 9001:2000 for the food and drink industry*

[5] ISO 22000, *Food safety management systems – Requirements for any organization in the food chain*

[6] ISO 948, *Spices and condiments – Sampling*

[7] ISO 972, *Chillies and capsicums, whole or ground (powdered) – Specification*

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**THE MALAWI BUREAU OF STANDARDS**

The Malawi Bureau of Standards is the standardizing body in Malawi under the aegis of the Ministry of Industry and Trade. Set up in 1972 by the Malawi Bureau of Standards Act (Cap: 51:02), the Bureau is a parastatal body whose activities aim at formulating and promoting the general adoption of standards relating to structures, commodities, materials, practices, operations and from time to time revise, alter and amend the same to incorporate advanced technology.

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