
**Spices and condiments — Determination
of extraneous matter and foreign matter
content**

Épices — Détermination de la teneur en matières étrangères

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

This third edition cancels and replaces the second edition (ISO 927:1982), which has been technically revised.

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Introduction

This International Standard is applicable to most spices and condiments. In view of the number and variety of such products, however, it may be necessary to modify the method or even to choose a method more suitable to a particular case.

Such modifications or other methods are indicated in the International Standards giving specifications for the spices or condiments in question.

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Spices and condiments — Determination of extraneous matter and foreign matter content

1 Scope

This International Standard specifies a general procedure for visual examination, or with magnification not exceeding 10 times, of whole spices for the determination of macro filth.

This International Standard is applicable to dehydrated herbs and spices.

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 948, *Spices and condiments — Sampling*

3 Terms and definitions

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

3.1

macro foreign matter

all matter visible to the naked eye or with a maximum 10 times magnifying power that is not part of the plant to which the spice or herb belongs

EXAMPLE The origin of macro foreign matter can be non-animal (e.g. stems, stones, straw, visible moulds) or animal (e.g. excreta, insects, and insect-defiled product) foreign matter.

3.2

macro extraneous matter

all matter visible to the naked eye or with a maximum 10 times magnifying power which are species waste belonging to the plant which the spice or herb belongs

EXAMPLE Macro extraneous matter can be floral waste.

Figure 1 summarizes these definitions.

4 Principle

This method should be used by all laboratories which perform macro extraneous and foreign matter analyses for: suspect mould on seeds and leaves, animal excreta pellets and faeces, whole insects and/or large insect fragments, sticks, stems, stones, glass, etc.

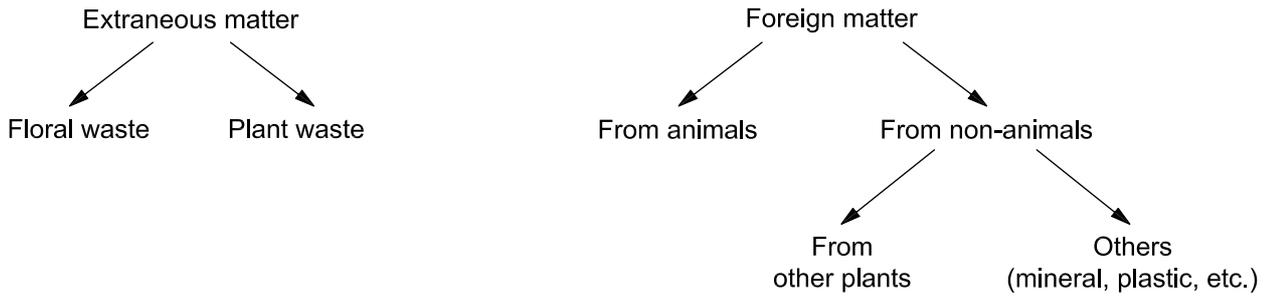


Figure 1 — Illustrated definitions

5 Apparatus

- 5.1 **Table and suitable lighting.**
- 5.2 **Paper**, large, clean white sheets (possibly glazed).
- 5.3 **Spatulas**, selection, of small and large sizes.
- 5.4 **Sample splitter**, Jones sampler or riffle divider.
- 5.5 **Balance**, capable of being read to at least the nearest 0,001 g.
- 5.6 **Butcher's knife** or any other suitable tool.
- 5.7 **Magnifying glass.**

6 Sampling

Sample the material by the method specified in ISO 948.

7 Procedure

7.1 Laboratory sample size and preparation

The laboratory sample should be a composite sample taken from different parts of the lot.

For high bulk density products, the laboratory sample size should be about 500 g (see Table 1).

For low bulk density products, the laboratory sample size should be about 250 g (see Table 1).

Saffron is an exception and the laboratory sample size should be 3 g.

7.2 Test portion

The laboratory sample should be homogenized before taking the test portion.

The entire laboratory sample is to be analysed unless a test portion is appropriate. The appropriateness is determined based on historical performance, the level of defect under investigation and homogeneity of the samples (see Table 1).

Table 1 — Laboratory sample and test portion size

Bulk density of product	Product	Laboratory sample size g	Appropriate test portion size g	Minimum test portion size g	
High	Allspice/pimento	500	100	100	
	Anise seed		100	10	
	Caraway seed		100	10	
	Cardamom seed		100	100	
	Cassia/cinnamon		100	50	
	Celery seed		100	10	
	Cloves		100	10	
	Coriander seed		100	10	
	Cumin seed		100	10	
	Dill seed		100	10	
	Fennel seed		100	10	
	Garlic		100	10	
	Ginger		100	100	
	Juniper berries		100	100	
	Nutmeg (whole and broken)		100 Nuts or 500 g if broken	100 Nuts or 500 g if broken	50 Nuts or 250 g if broken
	Onion		500	100	10
	Pepper (black and white)			100	100
Poppy seed	100	10			
Sesame seed	100	10			
Turmeric	100	100			
Low	Capsicums	250	100	100	
	Mace		25	25	
	Herb leaves		25	5	
Other	Saffron	3	3	0,5	

7.3 Examination procedure

7.3.1 All spices and herbs including nutmeg

Weigh (5.5) the sample prepared in 7.1 and 7.2 to the nearest 0,01 g.

Examine the sample by:

- spreading the product over a wide area of a well-lit (5.1) white sheet (5.2);
- using a spatula (5.3), move the product in such a manner that it is thoroughly examined;
- separate (5.4) all extraneous and/or foreign matter;
- weigh (5.5) or count (according to 8.1 and 8.2) the extraneous and foreign matter.

Report all extraneous and foreign matter.

7.3.2 Nutmeg

Break 100 nutmeg lengthwise using a butcher's knife (5.6).

Examine the broken surfaces for insects, insect parts, insect channelling, excreta, or visible mould. Magnification (5.7) can be used to confirm any observations.

Report foreign matter and number of positive nuts.

8 Calculation and expression of results

8.1 Extraneous matter and foreign matter

The mass fraction of extraneous matter, w_{EM} , and mass fraction of foreign matter, w_{FM} , expressed as percentages, are given by:

$$w_{EM} = 100 \times \frac{m_{EM}}{m_S}$$

$$w_{FM} = 100 \times \frac{m_{FM}}{m_S}$$

where

m_{EM} is the mass, in grams, of non-animal foreign matter;

m_S is the mass, in grams, of the laboratory sample or test portion, as appropriate.

Express the results to one decimal place.

8.2 Foreign matter from animals

Foreign matter from animals can be expressed according to Table 2 as type, name, number, count, mass fraction and percentage mass fraction.

Table 2 — Expression of results

Foreign matter	Expression of results
Rodent excreta	Count, mg/kg
Other excreta (including insect and bird excreta)	Type, count, mg/kg
Whole insects and parts (dead or alive, including mites and psocids)	Name, number
Larvae	Number
Mouldy material (all seeds or leaves exhibiting mould and 1/4 or more of their total area are considered mouldy)	Percentage mass fraction (calculated according to 8.1)
Insect-defiled product (including leaves, roots and/or seeds)	Percentage mass fraction (calculated according to 8.1)

9 Test report

The test report shall include at least the following information:

- a) an indication of the method used, including a reference to this International Standard;
- b) the results obtained;
- c) all operating details not specified in this International Standard, or regarded as optional, as well as any circumstances that may have influenced the results;
- d) all information necessary for complete identification of the sample.

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