INTERNATIONAL STANDARD

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Cereals and pulses — Determination of the mass of 1 000 grains

Céréales et légumineuses — Détermination de la masse de 1 000 grains

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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 520 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 4, *Cereals and pulses*.

This second edition cancels and replaces the first edition (ISO 520:1977), which has been technically revised.

Cereals and pulses — Determination of the mass of 1 000 grains

1 Scope

This International Standard specifies a method for the determination of the mass of 1 000 grains of cereals and pulses.

This International Standard is applicable to all species of cereals and pulses with the exception of seed lots for sowing purposes.

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 712, *Cereals and cereal products — Determination of moisture content — Reference method*

ISO 24557, *Pulses — Determination of moisture content — Air-oven method*

3 Terms and definitions

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

3.1
mass of 1 000 grains as received
mass of 1 000 grains including the moisture content at the time of the determination

3.2
mass of 1 000 grains on the dry matter basis
mass of 1 000 grains as received converted to the dry matter basis by correcting for the moisture content at the time of the determination

4 Principle

A test portion is prepared by separating whole grains. The test portion is weighed and the whole grains counted. The mass of the whole grains is divided by their number, and expressed on the basis of 1 000 grains.

5 Apparatus

5.1 Sample divider apparatus (if necessary).

5.2 Appropriate apparatus for counting grains (e.g. a photoelectric counter). If suitable apparatus is not available, counting may be carried out by hand.

5.3 Balance, capable of being read to the nearest 0,001 g.

6 Procedure

6.1 Determination of the mass of 1 000 grains as received

Take by division a mass consisting of approximately 500 grains from the sample as received. Separate the whole grains, weigh them to the nearest 0,01 g and count them. For straw cereals, a mass of 30 g is generally in accordance with this instruction.

Carry out tests in duplicate.

6.2 Determination of the mass of 1 000 grains on the dry matter basis

If the mass of 1 000 grains is to be referred to the dry basis, determine the moisture content of the whole grains free of impurities in a separate sample, in accordance with the reference method specified in ISO 712 for cereals and ISO 24557 for pulses.

7 Expression of results

7.1 The mass of 1 000 grains as received, m_1, in grams, is given by the equation:

$$m_1 = \frac{m_t \times 1\,000}{N}$$

where

m_t is the mass, in grams, of the whole grains in the test portion;

N is the number of whole grains in the test portion.

7.2 The mass of 1 000 grains on the dry matter basis, m_0, in grams, is given by the equation:

$$m_0 = \frac{m_1 \times \left(100 - w_{H_2O}\right)}{100}$$

where

m_1 is the mass, in grams, of the 1 000 grains as received;

w_{H_2O} is the moisture content, expressed as a percentage mass fraction, of the grains as received.

7.3 Take as the result the arithmetic mean of the duplicate tests, provided that the requirement concerning repeatability (see 8.2) is satisfied.