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Cereals and cereal products — Determination of moisture content —

Part 1: Reference method

Céréales et produits céréaliers — Détermination de la teneur en eau — Partie 1 : Méthode de référence

FDIS stage

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Foreword

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This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 4, *Cereals and pulses*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 338, *Cereal and cereal products*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fifthfirst edition whichof ISO 712-1 cancels and replaces the fourth edition (ISO 712:2009), is, of which it constitutes a minor revision that includes . The changes are as follows:

— numeration and change in the title to align with the new part of ISO 712 (ISO 712-2, *Cereals and cereal products — Determination of moisture content — Part 2: Automatic drying oven method)*.

A list of all parts in the ISO 712 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.www.iso.org/members.html.

Cereals and cereal products — Determination of moisture content —

Part 1:
Reference method

1 Scope

This ~~International Standard~~document specifies a routine reference method for the determination of the moisture content of cereals and cereal products.

This ~~International Standard~~document applies to: wheat, rice (paddy, husked and milled), barley, millet (*Panicum miliaceum*), rye, oats, triticale, sorghum in the form of grains, milled grains, semolina or flour.

The method is not applicable to maize and pulses.

NOTE For moisture content determination in maize, see ISO 6540~~[5]~~,[5]; and for pulses, see ISO 24557~~[7]~~.[7].

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ~~—~~ISO Online browsing platform: available at ~~https://www.iso.org/obp~~https://www.iso.org/obp

— ~~—~~IEC Electropedia: available at ~~https://www.electropedia.org/~~https://www.electropedia.org/

3.1
moisture content
true moisture content
mass loss undergone by a product ~~under the conditions specified in this International Standard~~

Note 1 to entry: Moisture content is expressed as a percentage.

4 Principle

If necessary, a laboratory sample is ground~~,~~ after conditioning~~, if required~~. A test portion is dried at a temperature between 130 °C and 133 °C, under conditions which enable a result to be obtained which corresponds to that obtained by the absolute method described in ~~Annex B.~~Annex B.

5 Apparatus

5.1 Analytical balance, capable of weighing to an accuracy of ~~±~~ ±0,001 g.

5.2 Grinding mill, having the following characteristics:

a) made of material which does not absorb moisture;

b) easy to clean and having as little dead space as possible;

c) ~~enabling~~enables grinding to be carried out rapidly and uniformly, without appreciable development of heat (difference of temperatures before and after grinding smaller than or equal to 5 °C);

NOTE A grinding mill fitted with a cooling device can ~~comply~~conform with this requirement.

d) ~~tightness to~~ air tight to avoid water exchange between sample and external air;

e) adjustable ~~so as~~ to obtain particles of the dimensions indicated in ~~Table 1.~~Table 1.

5.3 Metal dish, non-corrodible under the test conditions, or **glass dish**, with a lid and having an effective surface area enabling the test portion to be distributed ~~so as,~~ to give a mass per unit area of not more than 0,3 g/cm^2.

5.4 Constant-temperature oven, electrically heated, controlled in such a way that, during normal working, the temperature of the air and of the shelves carrying the test portions is maintained within the range 130 °C to 133 °C in the vicinity of the test portions.

The oven shall have a heat capacity such that, when initially adjusted to a temperature of 131 °C, it can regain this temperature in less than 30 min after insertion of the maximum number of test portions that can be dried simultaneously.

The effectiveness of the ventilation shall be determined using durum wheat semolina, of maximum particle size of 1 mm, as the test material. The ventilation shall be such that, after insertion of the maximum number of test portions that the oven can accommodate~~,~~ and drying at a temperature of 130 °C to 133 °C, the results, after heating the same test portions for 2 h and then for a further 1 h, do not differ by more than 0,15 g of moisture per 100 g of sample.

5.5 Desiccator, containing an effective desiccant.

6 Sampling

Sampling is not part of the method specified in this ~~International Standard.~~document. A recommended sampling method is given in ISO 24333~~[6].~~[6].

A representative sample, in an airtight packaging, should have been sent to the laboratory. It should not have been damaged or changed during transport or storage.

7 Preparation of the test sample

7.1 Products not requiring grinding

Products having particle size characteristics indicated in ~~Table 1~~Table 1 do not need to be ground before the determination.

Mix the laboratory sample thoroughly before taking the test portion ~~(8.2).~~(8.2).

Table 1 — Particle size characteristics of products not requiring grinding

Particle size characteristics mm	**Proportion** %
u 1,7 (1,8)[a]	100
~~>~~> 1,0 (1,0)[b]	u 10
~~<~~< 0,5 (0,56)[a]	W 50