
International Standard



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Cereals and cereal products — Determination of moisture content (Basic reference method)

Céréales et produits céréaliers — Détermination de la teneur en eau (Méthode de référence fondamentale)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 711 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*.

This second edition cancels and replaces the first edition (ISO 711-1978), of which it constitutes a minor revision.

NOTE — This International Standard is based on Standard No. 109/1 of the International Association for Cereal Science and Technology (ICC).

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Cereals and cereal products — Determination of moisture content (Basic reference method)

0 Introduction

The basic reference method specified in this International Standard ensures complete removal of moisture from the product, as has been demonstrated by tests of reversibility and addition of moisture, while avoiding any alteration in its chemical composition, particularly oxidation and loss of volatile organic substances.

1 Scope and field of application

This International Standard specifies the basic reference method for the determination of the moisture content of cereals and cereal products.¹⁾

The method is not applicable to maize, for which an identical method, called the absolute method, is specified in the annex to ISO 6540, *Maize — Determination of moisture content (on milled grains and on whole grains)*.

This basic reference method, which necessitates the employment of special equipment and experienced analysts, is therefore only suitable for use in specialized laboratories, and is intended to serve as a standard for checking and perfecting routine methods for the determination of moisture content (see particularly ISO 712). It is not intended to be used for settling commercial disputes.

2 References

ISO 712, *Cereals and cereal products — Determination of moisture content (Routine reference method)*.

ISO 950, *Cereals — Sampling (as grain)*.

3 Definition

moisture content: The loss in mass, expressed as a percentage, undergone by the product under the conditions specified in this International Standard.

4 Principle

If necessary, grinding of a sample, after conditioning, if required. Drying of a test portion under reduced pressure, at a temperature between 45 and 50 °C and in the presence of a desiccant, until constant mass is reached.

5 Apparatus

5.1 Analytical balance.

5.2 Apparatus for reducing pressure to 1,3 to 2,6 kPa,²⁾ for example a water pump.

5.3 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 grinding to be carried out rapidly and uniformly, without appreciable development of heat and, as far as possible, without contact with the outside air;
- d) adjustable so as to obtain particles of the dimensions indicated in 7.1.1.

5.4 Metal dish,³⁾ non-corrodible under the test conditions, with a sufficiently tight-fitting lid and having an effective surface area such as to allow the test portion to be distributed in a layer having a mass per unit area of not more than 0,3 g/cm².

5.5 Cup, made from glass or porcelain.

5.6 Drying tube,⁴⁾ of glass, in two parts, one of which, intended to receive the dish (5.4), is closed at one end, while the other, intended to receive the cup (5.5), carries a semi-capillary tube, with a stopcock, for evacuation purposes. The two parts are connected by a ground glass joint.

1) This method has been applied successfully to the following products: wheat, rice (paddy, husked and milled rice), barley, millet, rye and oats, in the form of grains, milled grains, semolina or flour.

2) 1,3 to 2,6 kPa = 13 to 26 mbar = 10 to 20 mmHg.

3) A suitable metal dish is shown, for information only, in figure 1.

4) A suitable drying tube is shown, for information only, in figure 2.