

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 711

CEREALS AND CEREAL PRODUCTS

DETERMINATION OF MOISTURE CONTENT

(Basic reference method)

1st EDITION

April 1968

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BRIEF HISTORY

The ISO Recommendation R 711, *Cereals and cereal products – Determination of moisture content. (Basic reference method)*, was drawn up by Technical Committee ISO/TC 34, *Agricultural food products*, the Secretariat of which is held by the Magyar Szabványügyi Hivatal (MSZH).

Work on this question by the Technical Committee began in 1960 and led, in 1965, to the adoption of a Draft ISO Recommendation.

In March 1966, this Draft ISO Recommendation (No. 908) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Hungary	Romania
Belgium	India	South Africa,
Bulgaria	Iran	Rep. of
Colombia	Netherlands	U.A.R.
Czechoslovakia	New Zealand	United Kingdom
Finland	Norway	U.S.S.R.
France	Poland	Yugoslavia
Germany	Portugal	

One Member Body opposed the approval of the Draft :

Chile

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council which decided, in April 1968, to accept it as an ISO RECOMMENDATION.

CEREALS AND CEREAL PRODUCTS

DETERMINATION OF MOISTURE CONTENT

(Basic reference method)

INTRODUCTION

This ISO Recommendation has been established to serve as the basic reference method with which to compare routine or other test procedures for the determination of the moisture content of cereals and cereal products. The method is designed to avoid any chemical alteration in the substance, particularly oxidation and loss of volatile organic substances, while ensuring complete removal of all moisture from the product. Tests of reversibility and the addition of moisture indicate that, in the present state of knowledge, the method may be regarded as enabling the true moisture content of cereals and cereal products to be obtained.

1. SCOPE

1.1 This ISO Recommendation describes the basic reference method for the determination of water in cereals and cereal products.

1.2 Field of application

This method is intended to serve as a standard for checking and perfecting methods which are particularly suitable for the routine determination of moisture in cereals and cereal products. It is not intended to be used for settling commercial disputes.

NOTE. — For simplicity, in the following sections the term *product* is used to designate either a cereal or a cereal product.

2. DEFINITION

The *moisture content* is defined as the loss in mass, expressed as a percentage of the mass of the original sample, undergone by the product under the conditions specified in this ISO Recommendation.

3. PRINCIPLE

Determination of the loss in mass when the product, if necessary ground without change in moisture content, is brought into equilibrium with a dry atmosphere at a temperature between 45 and 50 °C, at a pressure of 13 to 26 mbar (10 to 20 mmHg).

4. APPARATUS

4.1 *Analytical balance*

4.2 *Apparatus for obtaining a pressure of 13 to 26 mbar (10 to 20 mmHg), e.g. a water pump.*

4.3 *Grinding mill*

- made of material which does not absorb moisture,
- easy to clean and having as little dead space as possible,
- 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,
- adjustable so as to obtain particles of the dimensions indicated in clause 5.1.1.

4.4 *Metal dish, non-corrodible, with a sufficiently tight-fitting lid, the effective surface enabling the test portion to be distributed so as to give not more than 0.3 g/cm².**

4.5 *Glass or porcelain boat.*

4.6 *Drying tube***, of glass, of which one part is closed at one end and the other part carries a semi-capillary tube, with a stopcock, for evacuation purposes. The two parts are connected by a ground joint.

The test portion may be cooled in this apparatus after drying, a desiccator being then unnecessary for this operation.

4.7 *Constant temperature oven*, electrically heated, or any other system enabling the part of the drying tube containing the dish (4.4) to be brought to a temperature between 45 and 50 °C.

4.8 *Air-drying train*, gas-washing bottle containing pure analytical-grade sulphuric acid, $\rho_{20} \geq 1.83$ g/ml, connected to a tube containing pure analytical-grade phosphorus pentoxide spread on glass wool.

4.9 *Desiccator*, containing an efficient desiccant.

5. PROCEDURE

Carry out weighings to the nearest 0.0002 g.

* See Annex A.1 for a diagram (for guidance only) of a metal dish.

** See Annex A.2 for a diagram (for guidance only) of a drying tube.