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# INTERNATIONAL STANDARD



# 1442

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION · МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ · ORGANISATION INTERNATIONALE DE NORMALISATION

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## Meat and meat products — Determination of moisture content

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[ISO 1442:1973](https://standards.iteh.ai/catalog/standards/sist/f039ef6d-8829-4e2e-b012-ebb5123e6375/iso-1442-1973)

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**Descriptors** : agricultural products, animal products, meat, chemical analysis, determination of content, moisture content.

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## FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, International Standard ISO 1442 replaces ISO Recommendation R 1442:1970 drawn up by Technical Committee ISO/TC 34, *Agricultural food products*.

ISO 1442:1973

The Member Bodies of the following countries approved the Recommendation :  
<https://standards.iteh.ai/catalog/standards/sic/4039e8d-8829-4e2e-b012-ebb5123e6375/iso-1442-1973>

Australia	Iran	South Africa, Rep. of
Chile	Israel	Spain
Czechoslovakia	Korea, Rep. of	Thailand
Egypt, Arab Rep. of	Netherlands	Turkey
France	New Zealand	United Kingdom
Germany	Poland	U.S.S.R.
Hungary	Portugal	
India	Romania	

No Member Body expressed disapproval of the Recommendation.

# Meat and meat products – Determination of moisture content

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a reference method for the determination of the moisture content of meat and meat products.

## 2 REFERENCE

ISO ..., *Meat and meat products – Sampling*.<sup>1)</sup>

## 3 DEFINITION

**moisture** of meat and meat products: The loss in mass obtained under the operating conditions described.

The moisture content is expressed as a percentage by mass.

## 4 PRINCIPLE

Thorough mixing of the test portion with sand and ethanol, pre-drying of the mixture on a water bath, and drying to constant mass at  $103 \pm 2$  °C.

## 5 REAGENTS

**5.1 Sand.** Use the fraction of the sand which passes through a sieve of aperture width 1,4 mm and stays on a sieve of aperture width 250  $\mu$ m.

Wash the sand with running water. Boil the sand with dilute hydrochloric acid,  $\rho_{20} = 1,19$  g/ml, diluted (1 + 1), for 30 min while stirring continuously. Repeat this with another portion of the acid until the acid no longer turns yellow after boiling.

Then wash the sand with distilled water until the test for chloride is negative. Dry the sand at 150 to 160 °C and store in an airtight closed bottle.

**5.2 Ethanol**, at least 95 % (V/V).

## 6 APPARATUS

**6.1 Mechanical meat mincer**, laboratory size, fitted with a plate with holes of diameter not exceeding 4 mm.

**6.2 Dish**, flat, of porcelain or metal (for example, nickel, aluminium, stainless steel), diameter at least 60 mm, height about 25 mm.

**6.3 Thin glass rod**, flattened at one end, slightly longer than the diameter of the dish.

**6.4 Drying oven**, electrically heated, capable of being controlled at  $103 \pm 2$  °C.

**6.5 Water bath.**

**6.6 Desiccator**, containing an efficient desiccant.

**6.7 Analytical balance.**

## 7 SAMPLE

**7.1** Start from a representative sample of at least 200 g taken according to ISO ... .

**7.2** Store the sample in such a way that deterioration and change in composition are prevented.

## 8 PROCEDURE

### 8.1 Preparation of sample

Render the sample uniform by passing it at least twice through the meat mincer (6.1) and mixing. Keep it in a completely filled, airtight container and store in such a way that deterioration and change in composition are prevented. Analyse the sample as soon as possible, but in any case within 24 h.

1) In preparation.

## 8.2 Test portion

Dry the dish (6.2), containing a quantity of sand (5.1) three or four times the mass of the test portion and the glass rod (6.3), for 30 min in the oven (6.4) at  $103 \pm 2$  °C.

Allow the dish with its contents to cool in the desiccator (6.6) to room temperature and weigh to the nearest 0,001 g.

Transfer 5 to 10 g of the prepared sample to the dish and weigh the dish again to the nearest 0,001 g.

## 8.3 Determination

Add 5 to 10 ml of ethanol (5.2), depending on the mass of the test portion, and mix the mass by means of the glass rod (6.3).

Place the dish and contents on the water-bath (6.5), regulated at a temperature between 60 and 80 °C in order to avoid the ejection of particles, and heat until the ethanol has evaporated; stir occasionally.

Heat the dish and contents for 2 h in the drying oven (6.4) regulated at  $103 \pm 2$  °C. Remove the dish with its contents from the oven and place it in the desiccator (6.6).

Allow the dish and contents to cool to room temperature and weigh to the nearest 0,001 g.

Repeat the heating in the drying oven, cooling and weighing until the results of two successive weighings, separated by 1 h of heating, do not differ by more than 0,1 % of the mass of the test portion.

Carry out two determinations on the same prepared sample.

## 9 EXPRESSION OF RESULTS

### 9.1 Method of calculation and formula

The moisture content, as a percentage by mass, is equal to

$$(m_1 - m_2) \times \frac{100}{(m_1 - m_0)}$$

where

$m_0$  is the mass, in grams, of the dish, rod and sand;

$m_1$  is the mass, in grams, of the dish containing the test portion, rod and sand, before drying;

$m_2$  is the mass, in grams, of the dish containing the test portion, rod and sand, after drying.

Take as the result the arithmetic mean of the two determinations, if the requirement of 9.2 is satisfied.

Report the result rounded to one decimal place.

### 9.2 Repeatability

The difference between the results of two determinations carried out simultaneously or in rapid succession by the same analyst shall not be greater than 0,5 g of moisture per 100 g of sample.

## 10 TEST REPORT

The test report shall show the method used and the result obtained. It shall also mention any operating conditions not specified in this International Standard, or regarded as optional, as well as any circumstances that may have influenced the result.

The report shall include all details required for complete identification of the sample.