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**ISO**

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**ISO RECOMMENDATION  
R 1442**

MEAT AND MEAT PRODUCTS

**DETERMINATION OF MOISTURE CONTENT**

1st EDITION

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## BRIEF HISTORY

The ISO Recommendation R 1442, *Meat and meat products – Determination of moisture content*, 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 led to the adoption of Draft ISO Recommendation No. 1442, which was circulated to all the ISO Member Bodies for enquiry in February 1968. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

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

No Member Body opposed the approval of the Draft.

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

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## MEAT AND MEAT PRODUCTS

## DETERMINATION OF MOISTURE CONTENT

## 1. SCOPE

This ISO Recommendation describes a reference method for the determination of the moisture content of meat and meat products.

## 2. DEFINITION

By the *moisture* of meat and meat products is meant the loss in mass which is obtained when the meat or meat product is dried under the operating conditions described.

The moisture content is expressed as a percentage by mass.

## 3. 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.

## 4. REAGENTS

4.1 *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  $\mu\text{m}$ .

Wash the sand with running water. Boil the sand with dilute hydrochloric acid,  $\rho_{20} = 1.19$  g/ml, diluted (1 + 1) for 30 minutes 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 air-tight closed bottle.

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

## 5. APPARATUS

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

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

- 5.3 *Thin glass rod*, flattened at one end, slightly longer than the diameter of the dish.
- 5.4 *Drying oven*, electrically heated, adjusted to operate at  $103 \pm 2$  °C.
- 5.5 *Water bath*.
- 5.6 *Desiccator*, containing an efficient desiccant.
- 5.7 *Analytical balance*.

## 6. SAMPLE

- 6.1 Start from a representative sample of at least 200 g (see ISO Recommendation R ...\*, *Meat and meat products – Sampling*).
- 6.2 Store the sample in such a way that deterioration and change in composition are prevented.

## 7. PROCEDURE

### 7.1 Preparation of sample

Render the sample uniform by passing it at least twice through the meat mincer (5.1) and mixing. Keep it in a completely filled, air-tight container and store in such a way that deterioration and change in composition are prevented. Analyse the sample as soon as possible, by in any case within 24 hours.

### 7.2 Test portion

Dry the dish (5.2), containing a quantity of sand (4.1) three or four times the mass of the test portion and the glass rod (5.3), for 30 minutes in the oven (5.4) at  $103 \pm 2$  °C.

Allow the dish with its contents to cool in the desiccator (5.6) 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.

### 7.3 Determination

Add 5 to 10 ml of ethanol (4.2), depending on the mass of the test portion, and mix the mass by means of the glass rod (5.3).

Place the dish and contents on the water-bath (5.5) 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 hours in the drying oven (5.4) regulated at  $103 \pm 2$  °C. Remove the dish with its contents from the oven and place it in the desiccator (5.6).

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 hour's 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.

\* In preparation.