

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 771

OILSEED RESIDUES

DETERMINATION OF MOISTURE AND VOLATILE MATTER

1st EDITION
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BRIEF HISTORY

The ISO Recommendation R 711, *Oilseed residues, Determination of moisture and volatile matter*, 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 1963 and led, in 1965, to the adoption of a Draft ISO Recommendation.

In September 1966, this Draft ISO Recommendation (No. 1018) 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 :

Argentina	Hungary	South Africa,
Australia	India	Rep. of
Brazil	Iran	Thailand
Bulgaria	Israel	Turkey
Chile	Italy	U.A.R.
Colombia	Korea, Rep. of	United Kingdom
Czechoslovakia	Netherlands	U.S.S.R.
France	Poland	Yugoslavia
Germany	Romania	

No Member Body opposed the approval of the Draft.

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

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OILSEED RESIDUES

DETERMINATION OF MOISTURE AND VOLATILE MATTER

1. SCOPE

This ISO Recommendation describes a method for the determination of moisture and volatile matter in residues (excluding compounded products) obtained by the extraction of oil from oilseeds by pressure or solvent.

2. DEFINITION

By *moisture and volatile matter* is meant the loss in mass under the operating conditions described below.

The content of moisture and volatile matter is expressed as a percentage by mass.

3. PRINCIPLE

Drying of the product at a temperature in the neighbourhood of 103 °C, in a constant temperature oven at atmospheric pressure, to practically constant mass.

4. APPARATUS

4.1 *Analytical balance.*

4.2 *Mechanical mill*, easy to clean, allowing the residues to be ground without heating and without appreciable change in the content of moisture, volatile matter and oil, to particles passing completely through a sieve of aperture of 1 mm in diameter.

4.3 *Sieve*, with aperture of 1 mm in diameter.

4.4 *Vessel*, of corrosion-resistant metal, with flat bottom, provided with a well fitting lid and allowing the test portion to be spread at about 0.2 g per square centimetre (e.g. diameter of vessel 50 to 70 mm, height about 30 mm). Glass vessels with ground closures may also be used.

4.5 *Electric oven*, with temperature control, good natural ventilation and regulated so that in normal operation the temperature of the air and of the shelves carrying the samples is between 101 and 105 °C.

4.6 *Desiccator*, containing an efficient desiccant and provided with a metal plate for rapid cooling of the vessel.

5. PROCEDURE

Carry out all weighings to the nearest 0.001 g.

5.1 Preparation of the sample

5.1.1 Use the contract sample obtained as described in ISO Recommendation R ...,* *Oilseed residues – Sampling*.

5.1.2 Grind the contract sample, if necessary, in the previously well cleaned mechanical mill (4.2). Use about a twentieth of the sample to complete the cleaning of the mill and reject these grindings; grind the rest, collect the grindings, mix carefully and carry out the analysis without delay.

5.2 Test portion

5.2.1 Weigh the vessel (4.4) with its lid, after leaving it open for at least 30 minutes in the desiccator (4.6) at laboratory temperature.

5.2.2 Put into the vessel (4.4) about 5 g of grindings (see clause 5.1.2), spread this uniformly over the whole of the bottom of the vessel, close the vessel with its lid and re-weigh. Carry out these operations as quickly as possible, in order to avoid any appreciable change in water content.

5.3 Determination

Place the vessel (4.4) containing the test portion in the oven (4.5), previously regulated at 103 ± 2 °C, and take off the lid (see clause 5.4.1). After 2 hours, counting from the moment when the temperature again reaches 103 °C, replace the lid on the vessel before removal from the oven and transfer to the desiccator. When the vessel has cooled again to laboratory temperature, weigh it.

Put the vessel back into the oven for 1 hour, take it out again, allow it to cool to laboratory temperature, and re-weigh, as before. If the difference between the two weighings is less than or equal to 0.005 g, regard the operation as finished. If not, continue with 1 hour periods in the oven until the difference between two successive weighings is less than or equal to 0.005 g (see clauses 5.4.2 and 5.4.3).

Carry out two determinations on the same prepared sample.

5.4 Remarks

5.4.1 If several vessels are in the oven together, arrange them in such a way that air can circulate freely between them.

5.4.2 During the drying, do not add other test portions.

5.4.3 For most oilseed residues, a single 4 hour period in the oven at 103 ± 2 °C gives equivalent results, but it is the responsibility of the analyst to confirm this in each particular case.

* At present at the stage of a draft proposal.