

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**ISO RECOMMENDATION
R 665**

OLEAGINOUS SEEDS

DETERMINATION OF MOISTURE AND VOLATILE MATTER

1st EDITION

February 1968

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BRIEF HISTORY

The ISO Recommendation R 665, *Oleaginous seeds – 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 1960 and led, in 1963, to the adoption of a Draft ISO Recommendation.

In March 1966, this Draft ISO Recommendation (No. 907) 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
Chile	Ireland	Turkey
Colombia	Italy	U.A.R.
Czechoslovakia	Netherlands	United Kingdom
Finland	New Zealand	U.S.S.R.
France	Norway	Yugoslavia
Germany	Poland	

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 February 1968, to accept it as an ISO RECOMMENDATION.

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OLEAGINOUS SEEDS

DETERMINATION OF MOISTURE AND VOLATILE MATTER

1. SCOPE

This ISO Recommendation describes a method for the determination of moisture and volatile matter in oilseeds.

2. DEFINITION

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

3. PRINCIPLE

- 3.1 Determination of the moisture and volatile matter content of the material as received (pure seed and impurities), by drying at a temperature close to 103 °C, in a temperature-controlled oven at atmospheric pressure, until practically constant mass is reached.
- 3.2 If required, the moisture and volatile matter content of the pure seed alone may be determined.

4. APPARATUS

- 4.1 *Analytical balance.*
- 4.2 *Mechanical mill*, easy to clean, suitable for the kind of seed and allowing the latter to be ground without heating and without appreciable change in moisture, volatile matter and oil content.
- 4.3 *Mechanical grater* or, if not available, hand grater.
- 4.4 *Vessel*, of metal resistant to attack, with flat bottom, provided with a well fitting lid and allowing the test sample to be spread to about 0.2 g/cm² (e.g. diameter of vessel 70 mm, height 30 to 40 mm). Glass vessels with ground closures may also be used by agreement between buyer and seller.
- 4.5 *Temperature-controlled, electrically heated oven* with good natural ventilation, regulated so that the temperature of the air and of the shelves in the neighbourhood of the samples lies between 101 and 105 °C in normal operation.
- 4.6 *Desiccator* containing an efficient desiccant such as phosphorus pentoxide, silica gel, activated alumina, etc., and provided with a metal plate which allows the vessels to cool rapidly.

5. PROCEDURE

5.1 Preparation of sample

5.1.1 Use a sample for analysis, obtained as described in ISO Recommendation R 664, *Oleaginous seeds – Reduction of contract samples to samples for analysis*. If large non-oleaginous foreign bodies have been separated before the reduction of the laboratory sample, make allowance for this in the calculation (see clause 6.3.1). According to the requirements of the contract, use an analysis sample as received or after separation of the impurities.

5.1.2 For copra, grate the product by hand or, preferably, by use of a mechanical grater (4.3) which allows the whole sample to be treated. With hand operation, which does not allow all the analysis sample to be grated, endeavour to obtain a sub-sample which is as representative as possible and, to this end, take account of the size and colour of different fragments.

The length of the particles may exceed 2 mm, but should not be greater than 5 mm. Mix the particles carefully and carry out the determination without delay.

5.1.3 For seeds of medium size (e.g. groundnut, soya, etc.), except sunflower seed and cottonseed with adherent linters, grind the analysis sample in the mechanical mill (4.2) which has previously been well cleaned, until the major dimension of the particles obtained is not greater than 2 mm. Reject the first particles (about 1/20 of the sample), collect the rest, mix carefully and carry out the determination without delay.

5.1.4 Small seeds (e.g. linseed, colza, hemp, etc.) as well as safflower seed, sunflower seed and cottonseed with adherent linters, are analysed without previous grinding.

5.2 Test portion

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

5.2.2 Weigh into the vessel, to the nearest 0.001 g,

either 5 ± 0.5 g of the grated product (see clause 5.1.2) for copra, or meal (see clause 5.1.3) for medium-sized seeds other than safflower seed, sunflower seed or cottonseed with adherent linters,

or 5 to 10 g of whole seed for sunflower seed, cottonseed with adherent linters and small seeds.

Spread the material evenly over the whole base of the vessel and close the vessel by means of its cover. Weigh the whole.

5.2.3 Carry out these operations as quickly as possible, to avoid any appreciable change in moisture content.