

# INTERNATIONAL STANDARD

# ISO 10565

Second edition  
1998-08-15

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## **Oilseeds — Simultaneous determination of oil and water contents — Method using pulsed nuclear magnetic resonance spectrometry**

*Graines oléagineuses — Détermination simultanée de la teneur en huile et  
en eau — Méthode par spectrométrie par résonance magnétique nucléaire  
pulsée*



Reference number  
ISO 10565:1998(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10565 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Subcommittee SC 2, *Oleaginous seeds and fruits*.

This second edition cancels and replaces the first edition (ISO 10565:1993), which has been technically revised.

Annexes A and B of this International Standard are for information only.

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# Oilseeds — Simultaneous determination of oil and water contents — Method using pulsed nuclear magnetic resonance spectrometry

## 1 Scope

This International Standard specifies a rapid method for the determination of the oil and water contents of commercial oilseeds using pulsed nuclear magnetic resonance (NMR).

It is applicable to rapeseeds, soya beans, linseeds and sunflower seeds with a water content less than 10 %. For seeds with higher water contents, drying is necessary before the oil content can be determined by pulsed NMR.

NOTE 1 This method has been tested with rapeseeds, soya beans, linseeds and sunflower seeds. This does not, however, preclude its applicability to other commercial seeds whose oil is liquid at the temperature of measurement.

NOTE 2 The reproducibility values are generally higher than those obtained by the drying method (ISO 665).

## 2 Normative references

The following standards contain provisions which through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 659:1988, *Oilseeds — Determination of hexane extract (or light petroleum extract), called "oil content"*.

ISO 664:1990, *Oilseeds — Reduction of laboratory sample to test sample*.

ISO 665:1977, *Oilseeds — Determination of moisture and volatile matter content*.

## 3 Principle

Insertion of the test sample into the magnetic field of a pulsed NMR spectrometer.

Application of an alternating electromagnetic field in the form of an intense 90° radiofrequency (RF) pulse which excites all the hydrogen nuclei. Recording of the free induction decay (FID) following the 90° pulse. The maximum amplitude of this signal is proportional to the total number of protons from the water and oil phases of the sample.