

First edition
2008-05-01

Corrected version
2009-03-15

**Cereals, cereals-based products and
animal feeding stuffs — Determination
of crude fat and total fat content by the
Randall extraction method**

*Céréales, produits céréaliers et aliments des animaux — Détermination
de la teneur en matières grasses brutes et en matières grasses totales
par la méthode d'extraction de Randall*



Reference number
ISO 11085:2008(E)

© ISO 2008

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions.....	1
4 Principle.....	2
5 Reagents.....	2
6 Apparatus	2
7 Sampling.....	3
8 Procedure	3
8.1 Preparation of the test sample	3
8.2 Test portion	3
8.3 Preliminary extraction	3
8.4 Hydrolysis.....	4
8.5 Extraction	5
9 Calculation and expression of results.....	5
9.1 Determination with preliminary extraction.....	5
9.2 Determination without preliminary extraction	6
10 Precision.....	6
10.1 Interlaboratory test	6
10.2 Repeatability.....	6
10.3 Reproducibility.....	6
10.4 Critical difference.....	6
10.5 Measurement uncertainty	7
11 Test report	8
Annex A (informative) Results of an interlaboratory test.....	9
Annex B (informative) Comparison of fat contents for the samples used in the interlaboratory test	14
Bibliography	16

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 11085 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 4, *Cereals and pulses*, in collaboration with SC 10, *Animal feeding stuffs*.

ISO 11085 cancels and replaces ISO 7302:1982, which has been technically revised.

This corrected version of ISO 11085:2008 incorporates the following correction: on p. 10, Table A.1, column 8, last row, "0,384" has been deleted and "0,891" inserted.

Cereals, cereals-based products and animal feeding stuffs — Determination of crude fat and total fat content by the Randall extraction method

1 Scope

This International Standard specifies procedures for the determination of the fat content of cereals, cereal-based products, and animal feeding stuffs. These procedures are not applicable to oilseeds and oleaginous fruits.

The choice of procedure to be used depends on the nature and composition of the material analysed and the reason for carrying out the analysis.

Procedure A is a method for the determination of directly extractable crude fats, applicable to all materials, except those included within the scope of procedure B.

Procedure B is a method for the determination of total fats, applicable to all materials from which the oils and fats cannot be completely extracted without prior hydrolysis.

NOTE Most cereals, as well as feeds of animal origin, yeasts, potato protein, compound feeds with milk products, glens and products subjected to processes such as extrusion, flaking and heating, yield significantly higher total fat contents when tested by procedure B than by procedure A. See Annex B.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

crude fat content

mass fraction of substances extracted from the sample by procedure A specified in this International Standard

NOTE The crude fat content is expressed as a percentage mass fraction.

3.2

total fat content

mass fraction of substances extracted from the sample by procedure B specified in this International Standard

NOTE The total fat content is expressed as a percentage mass fraction.