
**Milled cereal products —
Determination of fat acidity**

Produits de mouture des céréales — Détermination de l'acidité grasse



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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 4, *Cereals and pulses*.

This third edition cancels and replaces the second edition (ISO 7305:1998), which has been technically revised. The main changes compared with the previous edition are as follows:

- the indicator has been modified and the procedure relating to laboratory practices has been revised;
- the expression of results has been changed to milligrams of sodium hydroxide per 100 g of dry matter for more precision.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document describes a method of estimating the quantity of long-chain, non-esterified fatty acids which are liberated by the action of lipase during the storage of milled cereal products. It therefore provides a sensitive and significant test to characterize the state of conservation and the utilization values of these products.

The solvent used for the extraction, 95 % to 96 % ethanol, breaks all the low-energy links where fatty acids are involved, and solubilizes the latter rapidly and quantitatively, with the exclusion of the major part of amino acids and mineral salts.

Observation of the colour change at the end point of the titration is facilitated by the absence of turbidity in the solution.

Milled cereal products — Determination of fat acidity

1 Scope

This document specifies a method for the determination of the fat acidity of milled cereal products. It is applicable to flours and semolinas obtained from wheat and durum wheat, and to pasta.

NOTE This document appears to be applicable also to grains, flours and semolinas obtained from maize, and rye flour and oat flakes, but a further interlaboratory test is necessary before confirming this extension of the field of application.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 712, *Cereals and cereal products — Determination of moisture content — Reference method*

ISO 12099, *Animal feeding stuffs, cereals and milled cereal products — Guidelines for the application of near infrared spectrometry*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

fat acidity

quantity of acids, essentially non-esterified fatty acids, extracted according to the procedure described in this document

Note 1 to entry: Fat acidity is expressed in milligrams of sodium hydroxide per 100 g of dry matter.

Note 2 to entry: A conversion of the result obtained by the calculation in [Clause 11](#) can be done to express the result in grams of sulphuric acid.

4 Principle

Dissolution of the acids in ethanol at room temperature, centrifuging and titration of an aliquot portion of the supernatant liquid against sodium hydroxide.

5 Reagents

Use only reagents of recognized analytical grade and distilled or demineralized water or water of equivalent purity.

5.1 Ethanol, 95 % to 96 % (volume fraction).