INTERNATIONAL STANDARD

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Animal and vegetable fats and oils — Determination of the content of *trans* fatty acid isomers of vegetable fats and oils — Gas chromatographic method

Corps gras d'origines animale et végétale — Détermination de la teneur en isomères trans *d'acides gras de corps gras d'origine végétale — Méthode par chromatographie en phase gazeuse*

Reference number
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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

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15304 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 11, *Animal and vegetable fats and oils*.

Annexes A to E of this International Standard are for information only.

In this corrected version, the identification of the main C18:2 *cis* isomer peak in Figure B.2 (the central peak in the figure) has been corrected from

C18:1 12*cis*

to

C18:2 9*cis*, 12*cis*

Animal and vegetable fats and oils — Determination of the content of *trans* fatty acid isomers of vegetable fats and oils — Gas chromatographic method

1 Scope

This International Standard specifies a gas chromatographic method using capillary columns for the determination of the content of *trans* fatty acid isomers of vegetable oils and fats.

The method is specially designed to evaluate, by a single capillary gas chromatographic (GC) procedure, the level of *trans* isomers as formed during (high temperature) refining, or during hydrogenation of vegetable oils or fats.

The method may also be used to report all other fatty acids (e.g. to obtain the full fatty acid composition and total amounts of saturated fatty acids, mono-unsaturated fatty acids and poly-unsaturated fatty acids) from the same sample and same analysis.

NOTE 1 The *trans*-isomer content as obtained with this method may not agree with the *trans*-isomer content as obtained using other methods.

NOTE 2 During (high temperature) refining (deacidification and deodorization), only geometrical isomers are formed of the mono- and poly-unsaturated fatty acids; i.e. the double bond(s) remain(s) at the same natural position. During hydrogenation, both positional and geometrical isomers are formed.

NOTE 3 For some specific *cis*- and *trans*-isomers formed during hydrogenation, co-elution is possible. This could influence the accuracy of the result. The level of these isomers is usually negligible in normal partially hydrogenated oils and fats.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 661, *Animal and vegetable fats and oils — Preparation of test sample*

ISO 5509, *Animal and vegetable fats and oils — Preparation of methyl esters of fatty acids*

3 Terms and definitions

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

3.1
content of *trans* fatty acid isomers of (high temperature) refined oils and fats
sum of the C18:1 *trans*, C18:2 *trans* and C18:3 *trans* fatty acid methyl esters, expressed as a mass fraction of all fatty acid methyl esters