



SLOVENSKI STANDARD SIST-TS CEN ISO/TS 22115:2021

01-september-2021

Živalske in rastlinske maščobe in olja - Ločevanje lipidnih razredov s kapilarno plinsko kromatografijo (metoda fingerprint) (ISO/TS 22115:2021)

Animal and vegetable fats and oils - Separation of lipid classes by capillary gas chromatography (fingerprint method) (ISO/TS 22115:2021)

Tierische und pflanzliche Fette und Öle - Relative Zusammensetzung von Ölen und Derivaten mittels Kapillargaschromatographie (Fingerprint-Verfahren) (ISO/TS 22115:2021)

Corps gras d'origines animale et végétale - Séparation des classes lipidiques par chromatographie en phase gazeuse sur colonne capillaire (méthode fingerprint) (ISO/TS 22115:2021)

Ta slovenski standard je istoveten z: CEN ISO/TS 22115:2021

ICS:

67.200.10	Rastlinske in živalske maščobe in olja	Animal and vegetable fats and oils
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SIST-TS CEN ISO/TS 22115:2021	en,fr,de
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CEN ISO/TS 22115

July 2021

ICS 67.200.10

English Version

Animal and vegetable fats and oils - Separation of lipid classes by capillary gas chromatography (fingerprint method) (ISO/TS 22115:2021)

Corps gras d'origines animale et végétale - Séparation des classes lipidiques par chromatographie en phase gazeuse sur colonne capillaire (méthode fingerprint) (ISO/TS 22115:2021)

Tierische und pflanzliche Fette und Öle - Relative Zusammensetzung von Ölen und Derivaten mittels Kapillargaschromatographie (Fingerprint-Verfahren) (ISO/TS 22115:2021)

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European foreword

This document (CEN ISO/TS 22115:2021) has been prepared by Technical Committee ISO/TC 34 "Food products" in collaboration with Technical Committee CEN/TC 307 "Oilseeds, vegetable and animal fats and oils and their by-products - Methods of sampling and analysis" the secretariat of which is held by AFNOR.

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The text of ISO/TS 22115:2021 has been approved by CEN as CEN ISO/TS 22115:2021 without any modification.

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TECHNICAL
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ISO/TS
22115

First edition
2021-06

**Animal and vegetable fats and oils —
Separation of lipid classes by capillary
gas chromatography (fingerprint
method)**

*Corps gras d'origines animale et végétale — Séparation des classes
lipidiques par chromatographie en phase gazeuse sur colonne
capillaire (méthode fingerprint)*

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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).

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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 11, *Animal and vegetable fats and oils*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 307, *Oilseeds, vegetable and animal fats and oils and their by-products — Methods of sampling and analysis*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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.

Animal and vegetable fats and oils — Separation of lipid classes by capillary gas chromatography (fingerprint method)

1 Scope

This document specifies a method for the semi-quantitative analysis of oils, fats and oil/fat-related samples (deodistillates).

It is applicable to the screening of oils, fats and oil/fat-related samples to obtain main (e.g. triglycerides) and minor (e.g. sterols, sterol esters, tocopherols, wax esters, fatty alcohols, glycerol) component information in one single analysis. For a truly quantitative analysis of pre-identified compound classes, specific methods are more appropriate.

The method can also be used as a useful qualitative screening tool for the relative comparison of sample compositions.

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

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3 Terms and definitions

No terms and definitions are listed in this document.

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/>

4 Principle

The hydroxylated compounds are transformed into silyl derivatives. This operation has no effect on the apolar (non-hydroxylated) compounds also present in the sample. The sample prepared is analysed by gas chromatography (GC) on a high-temperature capillary column with a low film thickness, with an on-column injector and flame-ionization detector.

For quantitative purposes, the compounds are quantified in the presence of an internal standard (1,2,3-tridecanoylglycerol) and the response factors are determined from a reference standard from each class.

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5 Reagents

WARNING — Attention is drawn to the regulations which specify the handling of hazardous substances. Technical, organizational and personal safety measures shall be followed.

During the analysis, unless otherwise stated, use only reagents of recognized analytical grade and distilled or demineralized water or water of equivalent purity.

5.1 Silylation reagent mixture: Methylimidazole (CAS 616-47-7) and MSHFBA (CAS 53296-64-3).

Prepare a mixture of silylation reagents: 1 ml of MSHFBA + 50 µl of Methylimidazole.

NOTE This mixture cannot be stored more than one week due to moisture absorption. Indeed, silyl derivatives are moisture sensitive.

5.2 Reference substances¹⁾

5.2.1 Oleic acid (CAS 112-80-1).

5.2.2 1-Monoolein (CAS 111-03-5).

5.2.3 1,3-Diolein (CAS 2465-32-9).

5.2.4 Triolein (CAS 122-32-7).

5.2.5 Tridecanoylglycerol (CAS 621-71-6).

5.2.6 Eicosanol (CAS 629-96-9).

5.2.7 α -Tocopherol (CAS 10191-41-0), **γ tocopherol** (CAS 54-28-4), **δ tocopherol** (CAS 119-13-1).

5.2.8 Cholesterol (CAS 57-88-5).

5.2.9 Cholesterol palmitate (CAS 601-34-3).

5.2.10 Squalene (CAS 111-02-4).

5.2.11 Plant sterol mix²⁾ (CAS 474-67-9, 474-62-4, 83-48-7, 83-46-5).

5.3 Isooctane, trace organic analysis grade, purity 99 % min.

5.4 Chloroform, chromatographic quality.

1) Suitable suppliers are Sigma-Aldrich (www.sigmaaldrich.com) or Larodan (www.larodan.com). This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of this supplier.

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