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Irish Standard
I.S. EN ISO 12228-1:2014

Determination of individual and total sterols contents - Gas chromatographic method - Part 1: Animal and vegetable fats and oils (ISO 12228-1:2014)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 12228-1

July 2014

ICS 67.200.10

Supersedes EN ISO 12228:1999

English Version

Determination of individual and total sterols contents - Gas chromatographic method - Part 1: Animal and vegetable fats and oils (ISO 12228-1:2014)

Détermination de la teneur en stérols individuels et totaux - Méthode par chromatographie en phase gazeuse - Partie 1: Corps gras d'origines animale et végétale (ISO 12228-1:2014)

Bestimmung der individuellen und der Gesamtsterine - Gaschromatographisches Verfahren - Teil 1: Tierische und pflanzliche Fette und Öle (ISO 12228-1:2014)

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Foreword

This document (EN ISO 12228-1:2014) 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.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2015, and conflicting national standards shall be withdrawn at the latest by January 2015.

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INTERNATIONAL STANDARD

ISO 12228-1

First edition
2014-07-15

Determination of individual and total sterols contents — Gas chromatographic method —

Part 1: Animal and vegetable fats and oils

Détermination de la teneur en stérols individuels et totaux — Méthode par chromatographie en phase gazeuse —

Partie 1: Corps gras d'origines animale et végétale

Reference number
ISO 12228-1:2014(E)

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Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 34, *Food products*, Subcommittee SC 11, *Animal and vegetable fats and oils*.

This first edition of ISO 12228-1, together with ISO 12228-2, cancels and replaces ISO 12228:1999, which has been technically revised.

ISO 12228 consists of the following parts, under the general title *Determination of individual and total sterols content — Gas chromatographic method*:

— *Part 1: Animal and vegetable fats and oils*

— *Part 2: Olive oils and olive pomace oils*

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Determination of individual and total sterols contents — Gas chromatographic method —

Part 1: Animal and vegetable fats and oils

1 Scope

This part of ISO 12228 specifies a procedure for the gas chromatographic determination of the content and composition of sterols in animal and vegetable fats and oils. However, the determination of the contents and composition of sterols in olive and olive pomace oils is to be carried out using ISO 12228-2.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

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
composition of sterols
composition of individual sterols in the sample, beginning with cholesterol and ending with Δ7-avenasterol (see Table 1) under the conditions specified in this part of ISO 12228

Note 1 to entry: The composition is expressed as a percentage of all peak areas, normalized to 100 %.

3.2
total sterol content
mass fraction of the sum of all individual sterols, as determined in accordance with the method specified in this part of ISO 12228, beginning with cholesterol and ending with Δ7-avenasterol (see Table 1), divided by the mass of the test portion

Note 1 to entry: The content is expressed in milligrams per kilogram.

4 Principle

A test portion is saponified by boiling under reflux with an ethanolic potassium hydroxide solution. The unsaponifiable matter is isolated by solid-phase extraction on an aluminium oxide column. The aluminium oxide column is used to retain the fatty acid anions; sterols pass through the column. The sterol fraction from the unsaponifiable matter is separated by thin-layer chromatography. The qualitative and quantitative compositions of the sterol fraction are determined by gas chromatography using cholestanol or betulin as the internal standard.

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