

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

## EESTI STANDARDI EESSÕNA

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English Version

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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Méthode par chromatographie en phase gazeuse - Partie 1:  
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Bestimmung der individuellen und der Gesamtsterine -  
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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of an identical text or by endorsement, at the latest by January 2015, and conflicting national standards shall be withdrawn at the latest by January 2015.

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### Endorsement notice

The text of ISO 12228-1:2014 has been approved by CEN as EN ISO 12228-1:2014 without any modification.

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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  $\Delta^7$ -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  $\Delta^7$ -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.