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**Animal and vegetable fats and oils —
Determination of individual and total sterols
contents — Gas chromatographic method**

*Corps gras d'origines animale et végétale — Détermination de la teneur en
stérois individuels et totaux — Méthode par chromatographie en phase
gazeuse*



Reference number
ISO/FDIS 12228:1999(E)

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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.

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.

International Standard ISO 1228 was prepared by ISO/TC 34, *Agricultural food products*, Subcommittee SC 11, *Animal and vegetable fats and oils*.

Annexes A and B of this International Standard are for information only.

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Animal and vegetable fats and oils — Determination of individual and total sterols contents — Gas chromatographic method

1 Scope

This International Standard specifies a method for the gas chromatographic determination of the contents and compositions of sterols in animal and vegetable fats and oils.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 661:1989, *Animal and vegetable fats and oils — Preparation of test samples*.

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

3 Definitions

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

3.1

composition of sterols

composition of individual sterols in the sample, beginning with cholesterol and ending with Δ^7 -avenasterol (see table 1) under the conditions specified in this International Standard

NOTE The composition is expressed as peak area, in percent, and normalized to 100 %.

3.2

total sterol content

mass of the sum of all individual sterols, as determined in accordance with the method specified in this International Standard, beginning with cholesterol and ending with Δ^7 -avenasterol (see table 1), divided by the mass of the test portion

NOTE The content is expressed in milligrams per 100 g.

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 betulin as an internal standard.