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# International Standard 7609

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

ANSI 1-11-85

## Essential oils — Analysis by gas chromatography on capillary columns — General method

*Huiles essentielles — Analyse par chromatographie en phase gazeuse sur colonne capillaire — Méthode générale*

First edition — 1985-12-01

UDC 665.5 : 543.544

Ref. No. ISO 7609-1985 (E)

Descriptors : essential oils, chemical analysis, chromatographic analysis, gas chromatography.

Price based on 7 pages

## 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7609 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

# Essential oils — Analysis by gas chromatography on capillary columns — General method

## 0 Introduction

Since the description of methods of analysis by gas chromatography is very long, it is considered useful to establish general methods on the one hand, giving detailed information on all the recurrent parameters, apparatus, products, methods, formulae, etc., and on the other hand standards with short details on the determination of specific constituents in the essential oils, giving only those operating conditions specific to the pertinent determination.

These short-version standards will either refer to the present International Standard for gas chromatographic analyses on capillary columns or to ISO 7359 for analyses on packed columns.

## 1 Scope and field of application

This International Standard specifies a general method for the analysis of essential oils by gas chromatography on capillary columns for the purpose of determining the content of a specific constituent and/or searching for a characteristic profile.

## 2 References

ISO 356, *Essential oils — Preparation of test sample*.

ISO 7359, *Essential oils — Analysis by gas chromatography on packed columns — General method*.

## 3 Principle

Analysis by gas chromatography under specified conditions of a small quantity<sup>1)</sup> of essential oil on a column of small diameter but great length, the inside wall of the column having been previously coated either directly with a specified stationary phase or with an impregnated support (column coated internally with impregnated support).

If required, identification of the different constituents from their retention indexes.

Quantitative determination of specific constituents by measurement of peak areas.

## 4 Reagents and products

During the analysis, unless otherwise specified, use only reagents of recognized analytical grade and freshly distilled products.

**4.1 Carrier gas:** hydrogen<sup>2)</sup>, helium or nitrogen, according to the type of detector used. If detectors are used which require carrier gases other than those mentioned, the carrier gas shall be specified.

**4.1.1 Auxiliary gases:** any gases suitable for the detector used. For a flame ionization detector air and hydrogen of high purity.

**4.2 Product for checking the chemical inertness of the column:** linalyl acetate, of purity at least 98 %.

**4.3 Products for checking the efficiency of the column.**<sup>3)</sup>

**4.3.1 Linalol,** of purity at least 99 % determined by chromatography.

**4.3.2 Methane,** of purity at least 99 % determined by chromatography.

**4.4 Reference substance,** corresponding to the constituent to be determined or detected. The reference substance will be indicated in each relevant International Standard.

**4.5 Internal standard.**

The internal standard will be specified in each relevant International Standard; it shall elute as near as possible to the con-

1) Take care to ensure that the injected test portion does not saturate the column.

2) Strict observance of safety regulations is essential when using this gas.

3) Other products may be used to check the efficiency of the column; they will be specified in each relevant International Standard.