
International Standard 7611

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

Oils of lemon and petitgrain citronnier, and oil of lime obtained by a mechanical process — Determination of citral (neral + geranial) content — Gas chromatographic method on capillary columns

Huiles essentielles de citron et de petitgrain citronnier et huile essentielle de lime obtenue par des procédés mécaniques — Détermination de la teneur en citral (néral + géranial) — Méthode par chromatographie en phase gazeuse sur colonne capillaire

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Foreword

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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 7611 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.

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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.

This is the case with the present International Standard, which refers to the general standard ISO 7609 for the general paragraphs.

1 Scope and field of application

This International Standard specifies a gas chromatographic capillary column method for the determination of the citral (neral + geranial) content of oils of lemon and petitgrain citronnier (*Citrus limon* Linnaeus N. L. Burman), and oil of lime obtained by a mechanical process [*Citrus aurantifolia* (Christman) Swingle and *Citrus latifolia* (Tanaka)].

2 References

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

ISO 7609, *Essential oils — Analysis by gas chromatography on capillary columns — General method*.

3 Principle

Analysis by gas chromatography on capillary columns, under specified conditions, of small quantities of oils of lemon, petitgrain citronnier or lime. Determination of the citral (neral + geranial) content using the internal standard method.

4 Reagents and products

4.1 Reference substance: mixture of neral and geranial (1 + 2), of purity at least 99 %, determined by chromatography under the test conditions.

4.2 Internal standard: Choose from the following freshly distilled products: acetophenone, hexadecane, methyl nonanoate, methyl dodecanoate, or nonadecane, of purity at least 99 %, determined by chromatography under the test conditions.

The internal standard chosen shall elute as near as possible to the constituents to be determined and shall not superimpose on the peaks of any of the constituents of the essential oils.

5 Apparatus

5.1 Chromatograph, recorder and electronic integrator.

See ISO 7609.

5.2 Column, of length at least 25 to 100 m and internal diameter from 0,2 to 0,5 mm. Stationary phase: polyethylene glycol 20 000.

5.3 Detector, flame ionization type.

6 Preparation of test sample

See ISO 356.

7 Operating conditions

7.1 Temperatures

— Oven:

linear temperature programming from 80 to 180 °C at a rate of 2 °C/min.

— Injection system:

about 190 to 200 °C.

— Detector:

200 to 250 °C, maximum.