INTERNATIONAL STANDARD

ISO 3044

Second edition
1997-07-15

Oil of *Eucalyptus citriodora* Hook.

*Huile essentielle d'*Eucalyptus citriodora *Hook.*

Reference number
ISO 3044:1997(E)

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 3044 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

This second edition cancels and replaces the first edition (ISO 3044:1974), which has been technically revised.

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

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Oil of *Eucalyptus citriodora* Hook.

1 Scope

This International Standard specifies certain characteristics of the oil of *Eucalyptus citriodora* Hook., in order to facilitate assessment of its quality.

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 210:— [1], *Essential oils — General rules for packaging, conditioning and storage.*

ISO 211:— [2], *Essential oils — Labelling and marking containers.*

ISO 212:1973, *Essential oils — Sampling.*

ISO 279:1981, *Essential oils — Determination of relative density at 20 °C (Reference method).*

ISO 280:1976, *Essential oils — Determination of refractive index.*

ISO 592:1981, *Essential oils — Determination of optical rotation.*

ISO 1271:1983, *Essential oils — Determination of carbonyl value — Free hydroxylamine method.*

ISO 11024-1:— [3], *Essential oils — General guidance on preparation and utilization of chromatographic profiles — Part 1: Preparation of chromatographic profiles for presentation in standards.*

ISO 11024-2:— [3], *Essential oils — General guidance on chromatographic profiles — Part 2: Utilization of chromatographic profiles of a sample of essential oils.*

3 Definition

For the purposes of this International Standard, the following definition applies.

3.1 oil of *Eucalyptus citriodora*: Essential oil obtained by steam distillation of the leaves and twigs of *Eucalyptus citriodora* Hook., of the Myrtaceae family.

1) To be published. (Revision of ISO 210:1961)

2) To be published. (Revision of ISO 211:1961)

3) To be published.

4 Requirements

4.1 Appearance

Mobile liquid.

4.2 Colour

Almost colourless, pale yellow to greenish yellow.

4.3 Odour

Characteristic, recalling that of citronellal.

4.4 Relative density at 20 °C/20 °C

Minimum: 0,860
Maximum: 0,870

4.5 Refractive index at 20 °C

Minimum: 1,450 0
Maximum: 1,456 0

4.6 Optical rotation at 20 °C

Range from −1° to +3°.

4.7 Carbonyl value

Minimum: 254
Corresponding to: 70 % (*m*/*m*) of carbonyl compounds expressed as citronellal.

4.8 Chromatographic profile

Analysis of the essential oil shall be carried out by gas chromatography. In the chromatogram obtained, the representative and characteristic components shown in table 1 shall be identified. The proportions of these components, indicated by the integrator, shall be as shown in table 1. This constitutes the chromatographic profile of the essential oil.

Table 1 — Chromatographic profile

Component	Minimum %	Maximum %
Citronellal	75	—
Neo-isopulegol + isopulegol	—	10
NOTE — The chromatographic profile is normative, contrary to typical chromatograms given for information in annex A.		

4.9 Flashpoint

Information on the flashpoint is given in annex B.

5 Sampling

See ISO 212.

Minimum volume of test sample: 25 ml.

NOTE — This volume allows each of the tests specified in this International Standard to be carried out at least once.

6 Test methods

6.1 Relative density at 20 °C/20 °C

See ISO 279.

6.2 Refractive index at 20 °C

See ISO 280.

6.3 Optical rotation at 20 °C

See ISO 592.

6.4 Carbonyl value

See ISO 1271.

Test portion: 0,5 g to 0,6 g.
Standing time: 30 min.
Relative molecular mass: 154,25.

6.5 Chromatographic profile

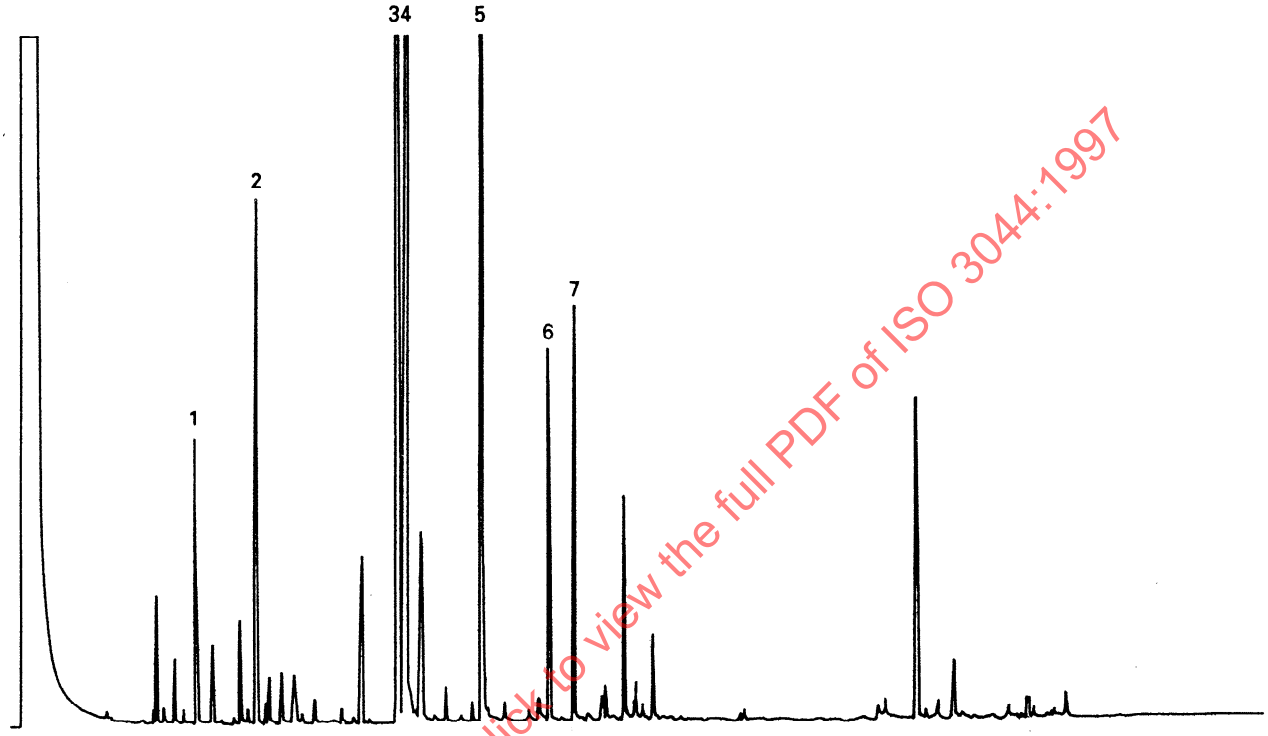
See ISO 11024-1 and ISO 11024-2.

7 Packaging, labelling, marking and storage

See ISO 210 and ISO 211.

Annex A
(informative)

Typical chromatograms of the essential oil of *Eucalyptus citriodora*



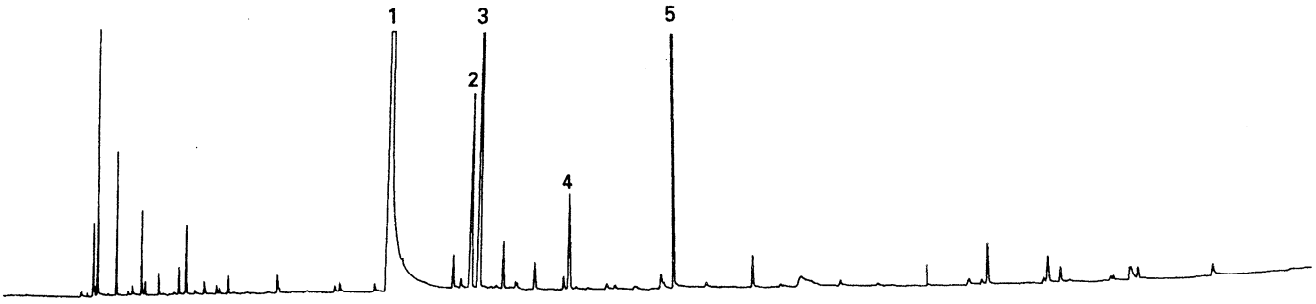
Peak identification

1 β-Pinene
2 1,8-Cineole
3 Isopulegol + neo-isopulegol
4 Citronellal
5 Citronellol
6 Citronellyl acetate
7 Caryophyllene

Operating conditions

Column: capillary, length 30 m; diameter 0,32 mm
Thickness of film: 0,25 µm
Stationary phase: DB-1701 (86 % of dimethyl-, 14 % of cyanopropylphenyl-polysiloxane)
Oven temperature: 50 °C for 3 min; then from 50 °C to 230 °C at a rate of 4 °C/min
Injector temperature: 250 °C
Detector temperature: 250 °C
Detector: flame ionization
Carrier gas: helium
Volume injected: 0,5 µl
Carrier gas flow rate: 2 ml/min
Sample: 0,2 % (*m*/*V*) in hexane
Chart speed: 1 cm/min

Figure A.1 — Typical chromatogram taken on an apolar column



Peak identification

1 Citronellal
2 Neo-isopulegol
3 Isopulegol
4 Citronellyl acetate
5 Citronellol

Operating conditions

Column: fused silica capillary; length 60 m; diameter 0,25 mm
Stationary phase: polyethylene glycol (DBWAX)
Oven temperature: from 70 °C to 220 °C, at a rate of 2 °C/min
Injector temperature: 200 °C
Detector temperature: 250 °C
Detector: flame ionization
Carrier gas: helium
Volume injected: about 0,1 µl
Carrier gas flow rate: 1 ml/min
Split ratio: 1/100

Figure A.2 — Typical chromatogram taken on a polar column