

INTERNATIONAL
STANDARD

ISO
10624

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Oil of elemi (*Canarium luzonicum* Miq.)

Huile essentielle d'élémi (Canarium luzonicum Miq.)

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Reference number
ISO 10624:1998(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 10624 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

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

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Oil of elemi (*Canarium luzonicum* Miq.)

1 Scope

This International Standard specifies certain characteristics of the oil of elemi (*Canarium luzonicum* Miq.), in order to facilitate assessment of its quality.

It is not applicable to rectified 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/TR 210:—¹⁾, *Essential oils — General rules for packaging, conditioning and storage*.

ISO/TR 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 11024-1:—³⁾, *Essential oils — General guidance on 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 samples of essential oils*.

3 Definition

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

3.1 oil of elemi: Essential oil obtained by distillation under reduced pressure or by steam distillation of the gum oleoresin of *Canarium luzonicum* Miq. of the Burseraceae family.

4 Requirements

4.1 Appearance

Liquid.

4.2 Colour

Colourless to pale yellow.

4.3 Odour

Characteristic, spicy balsamic with a citrus peel top note.

4.4 Relative density at 20 °C, d_{20}^{20}

Minimum: 0,850

Maximum: 0,910

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

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

³⁾ To be published.

4.5 Refractive index at 20 °C

Minimum: 1,472 0
Maximum: 1,490 0

4.6 Optical rotation at 20 °C

Range from +44° to +85°.

4.7 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.

4.8 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, d_{20}^{20}

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 Chromatographic profile

See ISO 11024-1 and ISO 11024-2.

7 Packaging, labelling, marking and storage

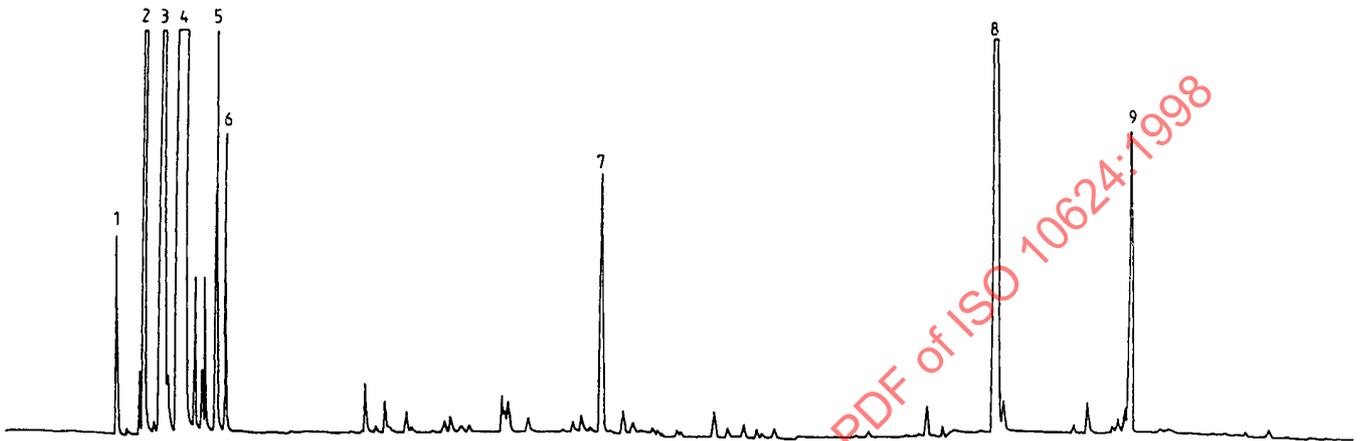
See ISO/TR 210 and ISO/TR 211.

Table 1 — Chromatographic profile

Component	Minimum %	Maximum %
Sabinene	3	8
α -Phellandrene	10	24
Limonene	40	72
α -Terpineol	0,4	3
Elemol	1	25
Elemicin	0,5	8
NOTE — The chromatographic profile is normative, contrary to the typical chromatogram given for information in annex A.		

Annex A (informative)

Typical chromatogram of the essential oil of elemi (*Canarium luzonicum* Miq.)



Peak identification

- 1 α -Pinene
- 2 Sabinene
- 3 α -Phellandrene
- 4 Limonene
- 5 *p*-Cymene
- 6 Terpinolene
- 7 α -Terpineol
- 8 Elemol
- 9 Elemicin

Operating conditions

Column: capillary, glass, length 50 m, diameter 0,32 mm
Stationary phase: polyethylene glycol 20 000
Oven temperature: from 70 °C to 200 °C, at a rate of 1,5 °C/min
Injector temperature: 250 °C
Detector temperature: 250 °C
Detector: flame ionization
Carrier gas: nitrogen
Volume injected: about 0,15 μ l
Split ratio: 1/100
Sensitivity: 1

Figure A.1 — Typical chromatogram

Annex B (informative)

Flashpoint

B.1 General information

For reasons of safety, transport companies, insurance companies, people in charge of safety services, etc. require information about the flashpoint of essential oils, which in most cases are inflammable products.

A comparative study on the relevant methods of analysis (see ISO/TR 11018⁴⁾) led to the understanding that it was hard to find a single method for standardization purposes, given that

- essential oils are varied and their chemical compositions differ to a large extent;
- the volume of the sample needed for certain test equipment is incompatible with the high price of essential oils;
- there are different types of equipment that satisfy the desired objective, but users cannot be obliged to use one type of equipment rather than another.

Consequently, it was decided to give a mean value for the flashpoint in an informative annex in each International Standard, in order to meet the request of the interested parties.

If possible, the method by which this value was obtained should be specified.

For further information see ISO/TR 11018⁴⁾.

B.2 Flashpoint of essential oil of elemi

The mean value is +53 °C.

NOTE — Obtained with "Setaflash" equipment.

⁴⁾ ISO/TR 11018:1997, *Essential oils — General guidance on the determination of flashpoint*.