INTERNATIONAL STANDARD

ISO 3527

Second edition
2000-10-15

Oil of parsley fruits (*Petroselinum sativum* Hoffm.)

*Huile essentielle de fruits de persil (*Petroselinum sativum *Hoffm.)*

Reference number
ISO 3527:2000(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 3527 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

This second edition cancels and replaces the first edition (ISO 3527:1975), which has been technically revised.

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

Oil of parsley fruits (*Petroselinum sativum* Hoffm.)

1 Scope

This International Standard specifies certain characteristics of the oil of parsley fruits (*Petroselinum sativum* Hoffm.), 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. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, 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. For undated references, the latest edition of the standard referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/TR 210, *Essential oils — General rules for packaging, conditioning and storage*.

ISO/TR 211, *Essential oils — General rules for labelling and marking of containers*.

ISO 212, *Essential oils — Sampling*.

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

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

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

ISO 709, *Essential oils — Determination of ester value*.

ISO 875, *Essential oils — Evaluation of miscibility in ethanol.*

ISO 1242, *Essential oils — Determination of acid value*.

ISO 11024-1, *Essential oils — General guidance on chromatographic profiles — Part 1: Preparation of chromatographic profiles for presentation in standards*.

ISO 11024-2, *Essential oils — General guidance on chromatographic profiles — Part 2: Utilization of chromatographic profiles of samples of essential oils*.

3 Term and definition

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

3.1
oil of parsley fruits
essential oil obtained by steam distillation of the ripe fruits of cultivated parsley (*Petroselinum sativum* Hoffm.) of the Apiaceae family

NOTE 1 Oil of parsley fruits is commercially known as “oil of parsley seed”.

NOTE 2 CAS number of oil of parsley fruits: 94334-31-3.

4 Requirements

4.1 Appearance

Clear liquid, sometimes crystallized.

4.2 Colour

Almost colourless to amber yellow.

4.3 Odour

Characteristic of the crushed fruit, but distinct from that of the green part of the plant.

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

Minimum: 1,043
Maximum: 1,083

4.5 Refractive index at 20 °C

Minimum: 1,513 0
Maximum: 1,522 0

4.6 Optical rotation at 20 °C

Between –10° and –4°.

4.7 Miscibility in 85 % ethanol (volume fraction) at 20 °C

It shall not be necessary to use more than 6 volumes of 85 % ethanol (volume fraction) to obtain a clear solution with 1 volume of essential oil.

4.8 Acid value

Maximum: 4

4.9 Ester value

Minimum: 1
Maximum: 10

4.10 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	Min. %	Max. %
α-Pinene	10	22
β-Pinene	7	15
Myristicin	25	50
Apiol	5	35
1,2,3,4-Tetramethoxy-5-allylbenzene	1	12
Elemicin	1	12
NOTE The chromatographic profile is normative, contrary to typical chromatograms given for information in annex A.		

4.11 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 Miscibility in 85 % ethanol (volume fraction) at 20 °C

See ISO 875.

6.5 Acid value

See ISO 1242.

6.6 Ester value

See ISO 709.
Test sample: 2 g.
Saponification time: 1 h.

6.7 Chromatographic profile

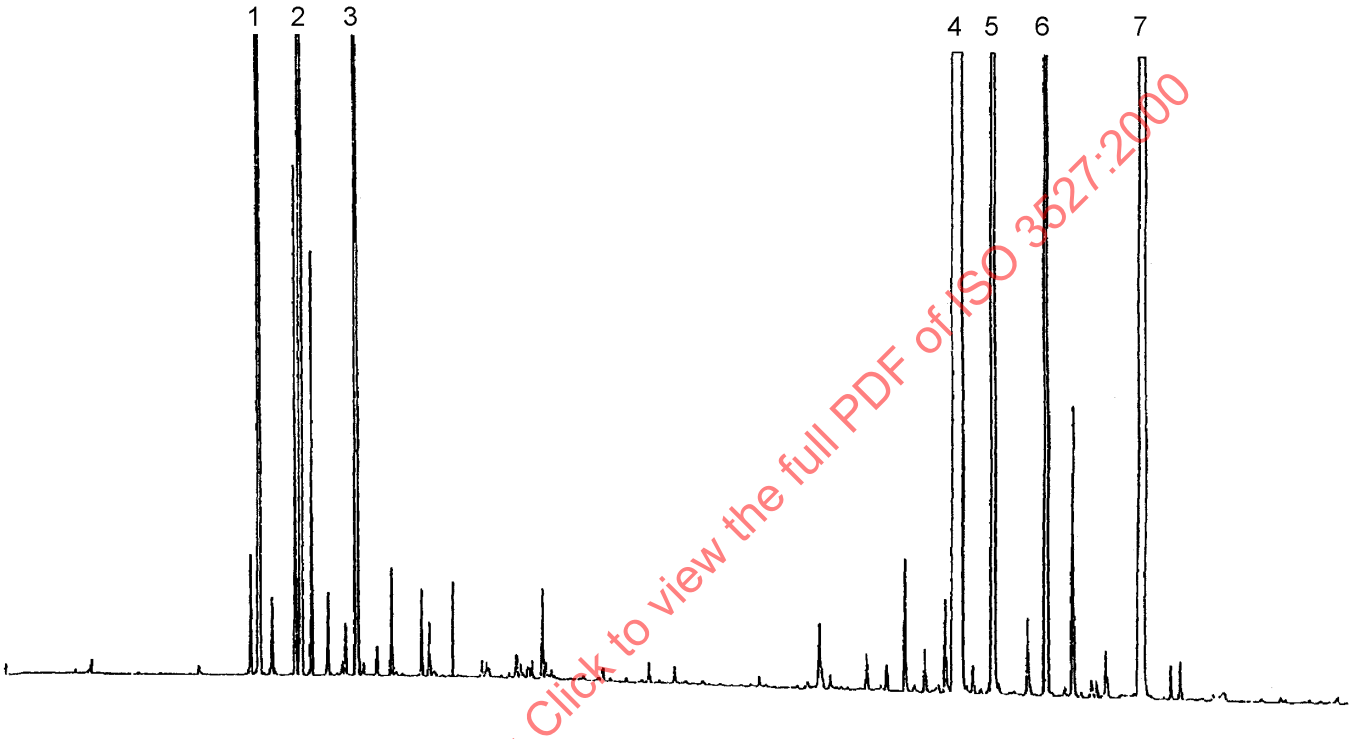
See ISO 11024-1 and ISO 11024-2.

7 Packaging, labelling, marking and storage

See ISO/TR 210 and ISO/TR 211.

Annex A
(informative)

Typical chromatograms of the analysis by gas chromatography of the essential oil of parsley fruits (*Petroselinum sativum* Hoffm.)



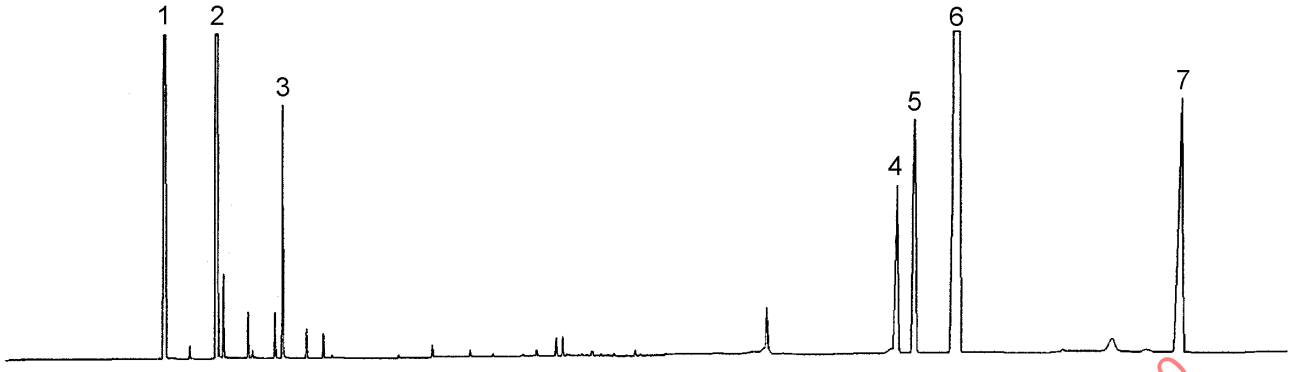
Peak identification

1 α-Pinene
2 β-Pinene
3 β-Phellandrene + limonene
4 Myristicin
5 Elemicin
6 1,2,3,4-Tetramethoxy-5-allylbenzene
7 Apiol

Operating conditions

Column: capillary, silica; length 50 m; internal diameter 0,25 mm
Stationary phase: polydimethyl siloxane (OV 101)
Film thickness: 0,25 μm
Oven temperature: programmed from 60 °C to 200 °C at a rate of 2,5 °C/min
Injector temperature: 270 °C
Detector temperature: 280 °C
Detector: flame ionization type
Carrier gas: hydrogen
Volume injected: 0,05 μl
Carrier gas flow rate: 2 ml/min
Split ratio: 1/60

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



Peak identification

1 α-Pinene
2 β-Pinene
3 β-Phellandrene
4 1,2,3,4-Tetramethoxy-5-allylbenzene
5 Elemicin
6 Myristicin
7 Apiol

Operating conditions

Column: capillary, silica; length 20 m; internal diameter 0,1 mm
Stationary phase: polyethylene glycol 20 000
Film thickness: 0,20 μm
Oven temperature: 50 °C for 1 min, then programmed from 50 °C to 200 °C at a rate of 10 °C/min
Injector temperature: 250 °C
Detector temperature: 250°C
Detector: flame ionization type
Carrier gas: hydrogen
Volume injected: 0,2 μl
Carrier gas flow rate: 0,3 ml/min
Split ratio: 1/350
Pressure programming: 220,7 kPa[1)] for 20 s, then 34,5 kPa/min up to 310,3 kPa, then 310,3 kPa for 20 min

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

1) 1 kPa = 0,145 psi