INTERNATIONAL STANDARD

ISO 11019

First edition
1998-02-01

Oil of roots of lovage (*Levisticum officinale* Koch)

*Huile essentielle des racines de livèche (*Levisticum officinale *Koch)*

Reference number
ISO 11019:1998(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 11019 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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Printed in Switzerland

Oil of roots of lovage (*Levisticum officinale* Koch)

1 Scope

This International Standard specifies certain characteristics of the oil of roots of lovage (*Levisticum officinale* Koch), 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/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 709:1980, *Essential oils — Determination of ester value.*

ISO 875:1981, *Essential oils — Evaluation of miscibility in ethanol.*

ISO 1242:1973, *Essential oils — Determination of acid value.*

3 Definition

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

3.1 oil of lovage: Essential oil obtained by steam distillation of the roots of *Levisticum officinale* Koch, of the Apiaceae family.

4 Requirements

4.1 Appearance

Liquid.

4.2 Colour

Yellow to dark brown.

4.3 Odour

Characteristic, spicy, aromatic, recalling that of celery and angelica.

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

Minimum: 1,010
Maximum: 1,090

1) To be published. (Revision of ISO 210:1961)
2) To be published. (Revision of ISO 211:1961)

4.5 Refractive index at 20 °C

Minimum: 1,535 0
Maximum: 1,558 0

4.6 Optical rotation at 20 °C

Range from −1 °C to +5 °C.

4.7 Miscibility in 85 % (*V*/*V*) ethanol at 20 °C

1 volume of the oil shall not require more than 1,5 volumes of 85 % (*V*/*V*) ethanol at 20 °C to give a clear solution.

4.8 Acid value

Minimum: 2,0
Maximum: 16

4.9 Ester value

Minimum: 170
Maximum: 260

4.10 Flashpoint

Information on the flashpoint is given in annex B.

5 Sampling

See ISO 212.

Minimum volume of final sample: 50 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 % (*V*/*V*) ethanol at 20 °C

See ISO 875.

6.5 Acid value

See ISO 1242.

6.6 Ester value

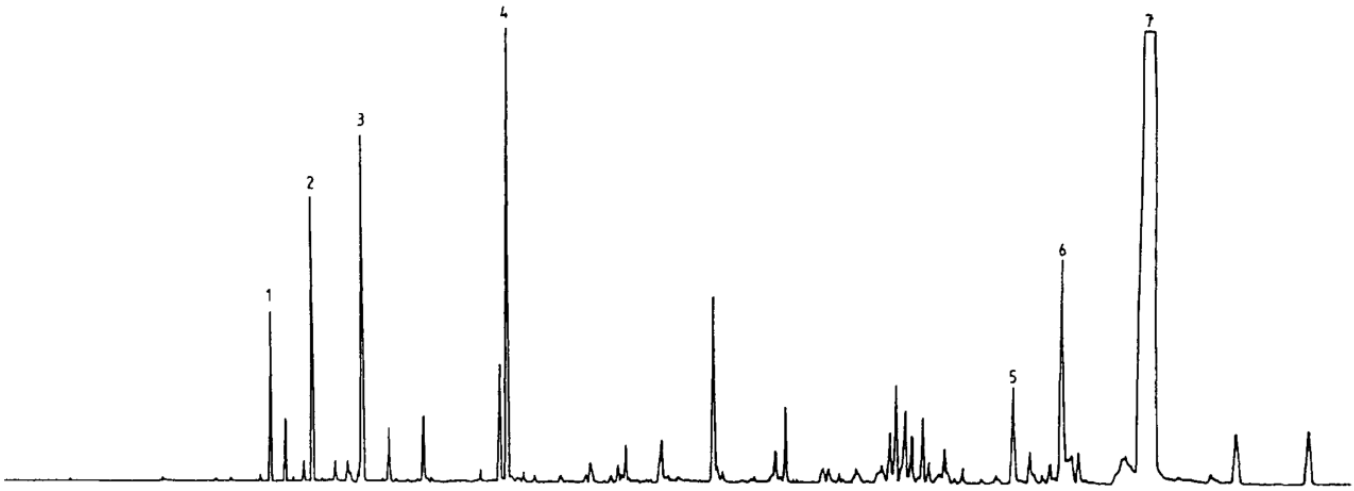
See ISO 709.

7 Packaging, labelling, marking and storage

See ISO/TR 210 and ISO/TR 211.

Annex A
(informative)

Typical chromatogram of the essential oil of roots of lovage (*Levisticum officinale* Koch)



Peak identification

1 α-Pinene
2 β-Pinene
3 Limonene + β-phellandrene
4 1-*n*-Pentyl-1,3-cyclohexadiene
5 3-*n*-Propylidene-4,5-dihydrophthalide
6 3-*n*-Butylidene phthalide
7 3-*n*-Butylidene-4,5-dihydrophthalide (Ligustilide)

Operating conditions

Column: capillary, length 50 m, diameter 0,25 mm
Thickness of film: 0,4 μm
Stationary phase: methyl silicone OV 101 (100 %)
Oven temperature: from 80 °C to 210 °C, at a rate of 1,5 °C/min
then constant at 210 °C for 45 min
Injector temperature: 250 °C
Detector temperature: 250 °C
Detector: flame ionization
Carrier gas: nitrogen
Volume injected: 0,20 μl

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 11018) 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 11018[3].

B.2 Flashpoint of essential oil of lovage

The mean value is +62 °C.

NOTE — Obtained with "Setaflash" equipment

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

ICS 71.100.60

Descriptors: fruit and vegetable products, essential oils, lovage, roots (botany), specifications, characteristics, organoleptic properties, physical properties, chemical properties, flash point, tests, packaging, marking, labelling, storage.

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