INTERNATIONAL STANDARD

ISO 4719

Third edition
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Essential oil of spike lavender (*Lavandula latifolia* Medikus), Spanish type

*Huile essentielle d'aspic (*Lavandula latifolia *Medikus), type Espagne*

Reference number
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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4719 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

This third edition cancels and replaces the second edition (ISO 4719:1999), which has been technically revised.

Essential oil of spike lavender (*Lavandula latifolia* Medikus), Spanish type

1 Scope

This International Standard specifies certain characteristics of essential oil of spike lavender (*Lavandula latifolia* Medikus), Spanish type, in order to facilitate assessment of its quality.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

ISO 11024 (all parts), *Essential oils — General guidance on chromatographic profiles*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
essential oil of spike lavender
essential oil obtained by steam distillation of the flowering tops of *Lavandula latifolia* Medikus, of the Lamiaceae family, growing mainly in Spain

Note 1 to entry: For information on the CAS number, see ISO/TR 21092.[2]

4 Requirements

4.1 Appearance

Clear mobile liquid.

4.2 Colour

Light yellow to orange yellow.

4.3 Odour

Characteristic, earthy, more or less camphoraceous.

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

Minimum: 0,894

Maximum: 0,907

4.5 Refractive index at 20 °C

Minimum: 1,461

Maximum: 1,468

4.6 Optical rotation at 20 °C

Between –7° and +2°

4.7 Miscibility in ethanol 70 % volume fraction at 20 °C

It shall not be necessary to use more than 3 volumes of ethanol 70 % volume fraction to obtain a clear solution with 1 volume of essential oil.

NOTE Sometimes opalescence is observed on dilution.

4.8 Acid value

Maximum: 2,0

4.9 Chromatographic profile

Carry out the analysis of the essential oil by gas chromatography. Identify in the chromatogram obtained the representative and characteristic components shown in Table 1. 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
	%	%
Limonene	0,5	3,0
1,8-Cineole	16,0	39,0
Camphor	8,0	16,0
Linalool	34,0	50,0
Linalyl acetate	n.d.[a]	1,6
α-Terpineol	0,2	2,0
trans-α-Bisabolene	0,4	2,5

NOTE The chromatographic profile is normative, contrary to typical chromatograms given for information in Annex A.

[a] Not detectable.

4.10 Flashpoint

Information on the flashpoint is given in Annex B.

5 Sampling

Sampling shall be performed in accordance with 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

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

Determine the relative density in accordance with ISO 279.

6.1 Refractive index at 20 °C

Determine the refractive index in accordance with ISO 280.

6.2 Optical rotation at 20 °C

Determine the optical rotation in accordance with ISO 592.

6.3 Miscibility in ethanol 70 % volume fraction at 20 °C

Determine the miscibility in accordance with ISO 875.

6.4 Acid value

Determine the acid value in accordance with ISO 1242.

6.5 Chromatographic profile

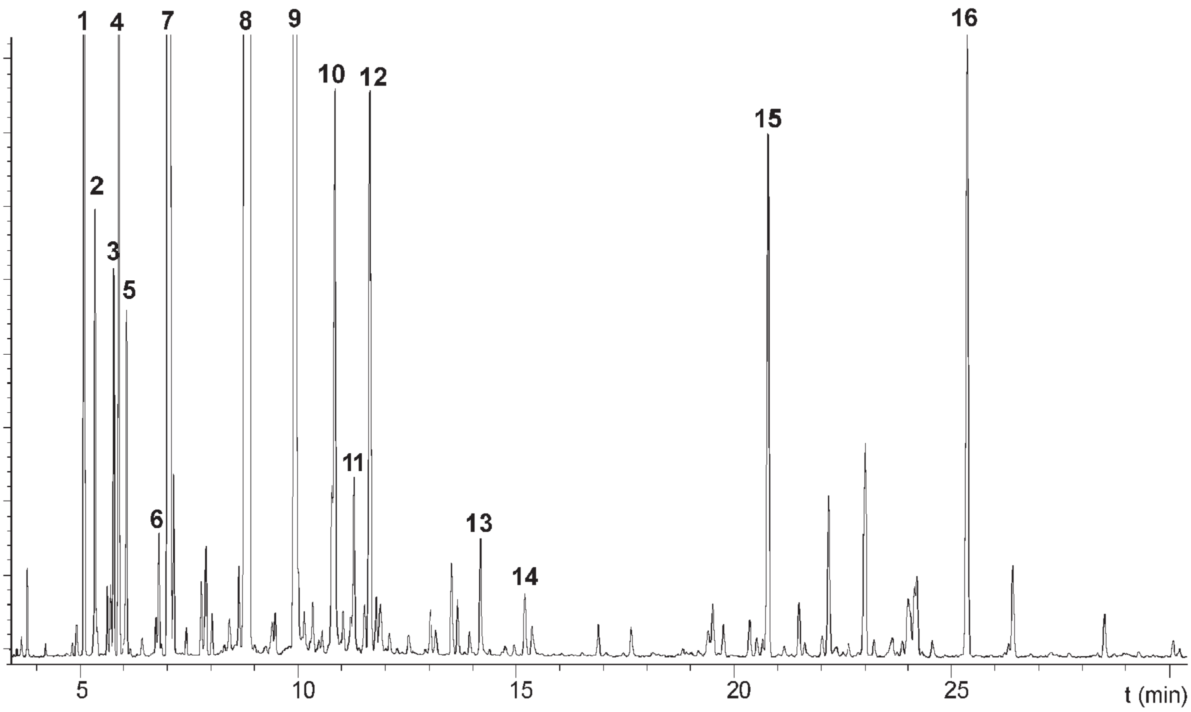
Determine the chromatographic profile in accordance with ISO 11024.

7 Packaging, labelling, marking and storage

These items shall be in accordance with ISO/TR 210 and ISO/TR 211.

Annex A
(informative)

Typical chromatograms of the analysis by gas chromatography of the essential oil of spike lavender (*Lavandula latifolia* Medikus), Spanish type



Key

Peak identification

1 α-Pinene
2 Camphene
3 Sabinene
4 β-Pinene
5 Myrcene
6 p-Cymene
7 Limonene + 1,8-cineole
8 Linalool
9 Camphor
10 Borneol
11 Terpinen-4-ol
12 α-Terpineol
13 Linalyl acetate
14 Bornyl acetate
15 β-Caryophyllene
16 *trans*-α-Bisabolene

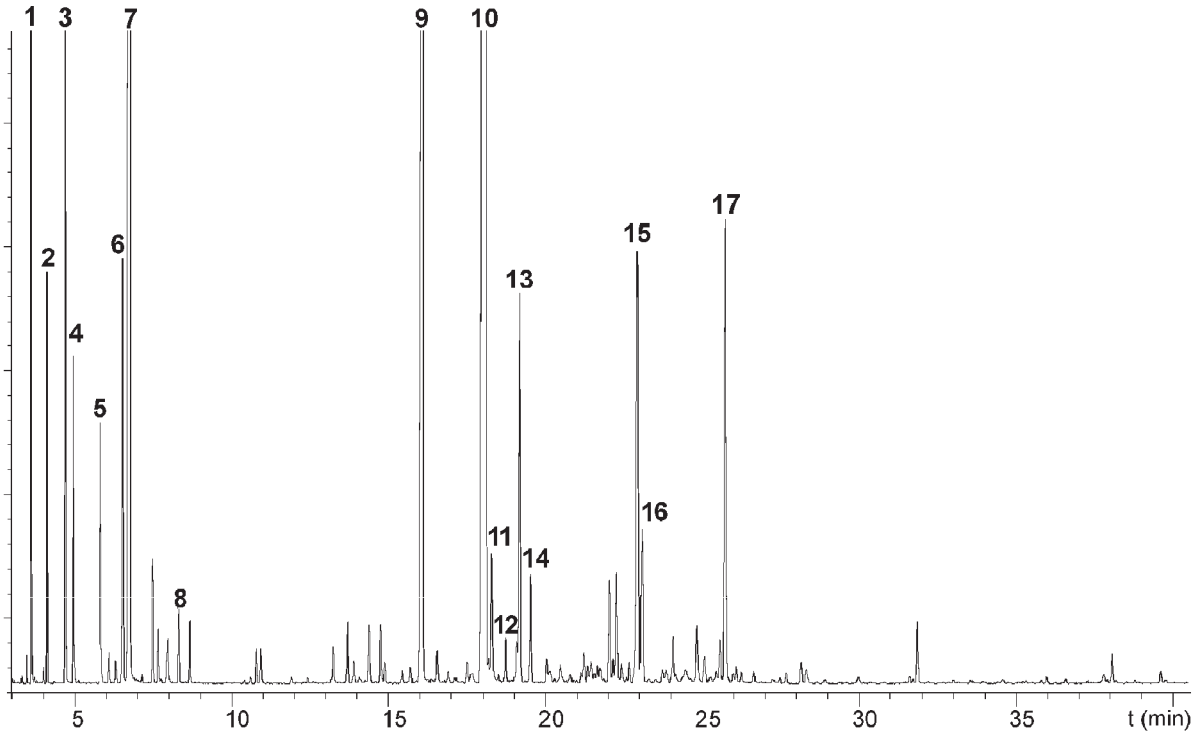
Operating conditions

Column: capillary, fused silica; length 30 m; internal diameter 0,25 mm
Stationary phase: poly(methyl siloxane)[HP-1[a]]
Film thickness: 0,25 µm
Oven temperature: programmed temperature from 75 °C to 210 °C at a rate of 3 °C/min
Injector temperature: 250 °C
Detector temperature: 250 °C
Detector: flame ionization type
Carrier gas: helium
Volume injected: 0,1 µl
Carrier gas flow rate: 1 ml/min
Split ratio: 1/250

t time

[a]HP-1 is an example of a suitable product available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of this product.

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



Key

Peak identification		**Operating conditions**
1	α-Pinene	Column: capillary, fused silica; length 30 m; internal diameter 0,25 mm
2	Camphene	Stationary phase: poly(ethylene glycol) [Innowax 20 M[a]]
3	β-Pinene	Film thickness: 0,15 µm
4	Sabinene	Oven temperature: programmed temperature from 50 °C to 210 °C at a rate of 3 °C/min, then from 210 °C to 250 °C at a rate of 40 °C/min, then isothermal at 250 °C for 5 min
5	Myrcene	
6	Limonene	Injector temperature: 250 °C
7	1,8-Cineole	Detector temperature: 250 °C
8	*p*-Cymene	Detector: flame ionization type
9	Camphor	Carrier gas: helium
10	Linalool	Volume injected: 0,1 µl
11	Linalyl acetate	Carrier gas flow rate: 1 ml/min
12	Bornyl acetate	Split ratio: 1/250
13	β-Caryophyllene	
14	Terpinen-4-ol	
15	α-Terpineol	
16	Borneol	
17	trans-α-Bisabolene	

t time

[a]Innowax 20 M is an example of a suitable product available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of this product.

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

Annex B
(informative)

Flashpoint

B.1 General information

For safety reasons, transport companies, insurance companies, and people in charge of safety services require information on the flashpoints of essential oils, which in most cases are flammable products.

A comparative study on the relevant methods of analysis (see ISO/TR 11018[1]) concluded that it was difficult to recommend a single apparatus for standardization purposes, given that:

there is a wide variation in the chemical composition of essential oils;

the volume of the sample needed in certain requirements would be too costly for high-priced essential oils;

as there are several different types of equipment which can be used for the determination, users cannot be expected to use one specified type only.

Consequently, it was decided to give a mean value for the flashpoint annexed to each International Standard, for information, in order to meet the requirements of the interested parties.

The equipment with which this value was obtained has to be specified.

For further information see ISO/TR 11018.[1]

B.2 Flashpoint of the essential oil of spike lavender

The mean value is +60 °C.

NOTE Obtained with Setaflash[1)] equipment.

1) Equipment available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of this product.

Bibliography

[1] ISO/TR 11018, *Essential oils — General guidance on the determination of flashpoint*

[2] ISO/TR 21092, *Essential oils — Characterization*

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