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Essential oil of lavandin Abrial (*Lavandula angustifolia* Mill. × *Lavandula latifolia* Medik.), French type

*Huile essentielle de lavandin Abrial (*Lavandula angustifolia *Mill.* × Lavandula latifolia *Medik.), type France*

Reference number
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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This fourth edition cancels and replaces the third edition (ISO 3054:2001), which has been technically revised.

Essential oil of lavandin Abrial (*Lavandula angustifolia* Mill. × *Lavandula latifolia* Medik.), French type

1 Scope

This document specifies certain characteristics of the essential oil of lavandin Abrial (*Lavandula angustifolia* Mill. × *Lavandula latifolia* Medik.), principally produced in France, in order to facilitate assessment of its quality.

NOTE This essential oil is also known commercially as oil of lavandin abrialis.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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/TS 210, *Essential oils — General rules for packaging, conditioning and storage*

ISO/TS 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.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
essential oil of lavandin Abrial
essential oil obtained by steam distillation of the freshly cut flowering tops of a particular clone of lavandin (*Lavandula angustifolia* Mill. × *Lavandula latifolia* Medik.), of the Lamiaceae family, principally produced in France

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

4 Requirements

4.1 Essential oil of lavandin Abrial shall meet the requirements given in Table 1.

Table 1 — Requirements for the essential oil of lavandin Abrial

Characteristics	Requirements	Test method
Appearance	Clear mobile liquid	—
Colour	Pale yellow	—
Odour	Characteristic, resembling lavender, with a slight camphoraceous note	—
Relative density at 20 °C, d_{20}^{20}	0,887 to 0,897	ISO 279
Refractive index at 20 °C	1,460 0 to 1,466 0	ISO 280
Optical rotation	Between -5° and -1,5°	ISO 592
Miscibility in ethanol 80 % (volume fraction), at 20 °C	It shall not be necessary to use more than 4 volumes of ethanol 70 % (volume fraction) to obtain a clear solution with 1 volume of essential oil. Sometimes, opalescence can arise on continuing the addition of ethanol.	ISO 875
Acid value	Maximum: 1,0	ISO 1242

4.2 Carry out the analysis of the essential oil by gas chromatography. Determine the chromatographic profile in accordance with ISO 11024 (all parts). Identify in the chromatogram obtained, the representative and characteristic components shown in Table 2. The proportions of these components, indicated by the integrator, shall be as shown in Table 2. This constitutes the chromatographic profile of the essential oil.

Table 2 — Chromatographic profile

Component	Minimum	Maximum
	%	%
1,8-Cineole	6,0	12,5
Limonene	0,5	1,5
(*Z*)-β-Ocimene	1,4	3,0
(*E*)-β-Ocimene	2,5	6,0
Camphor	7,0	11,0
Linalool	28,0	38,0
Linalyl acetate	19,0	29,0
β-Caryophyllene	1,5	2,5
Terpinen-4-ol	0,3	1,2
Borneol	1,5	3,5
Lavandulol	0,4	1,2
Lavandulyl acetate	1,0	2,0
Myrcene	0,4	0,9
α-Terpineol	0,3	1,2
Hexyl butyrate	0,2	0,5
NOTE The chromatographic profile is normative, contrary to typical chromatograms given for information in Annex A.		

5 Flashpoint

Information on the flashpoint is given in Annex B.

6 Sampling

Sampling shall be performed in accordance with ISO 212.

Minimum volume of test sample: 25 ml.

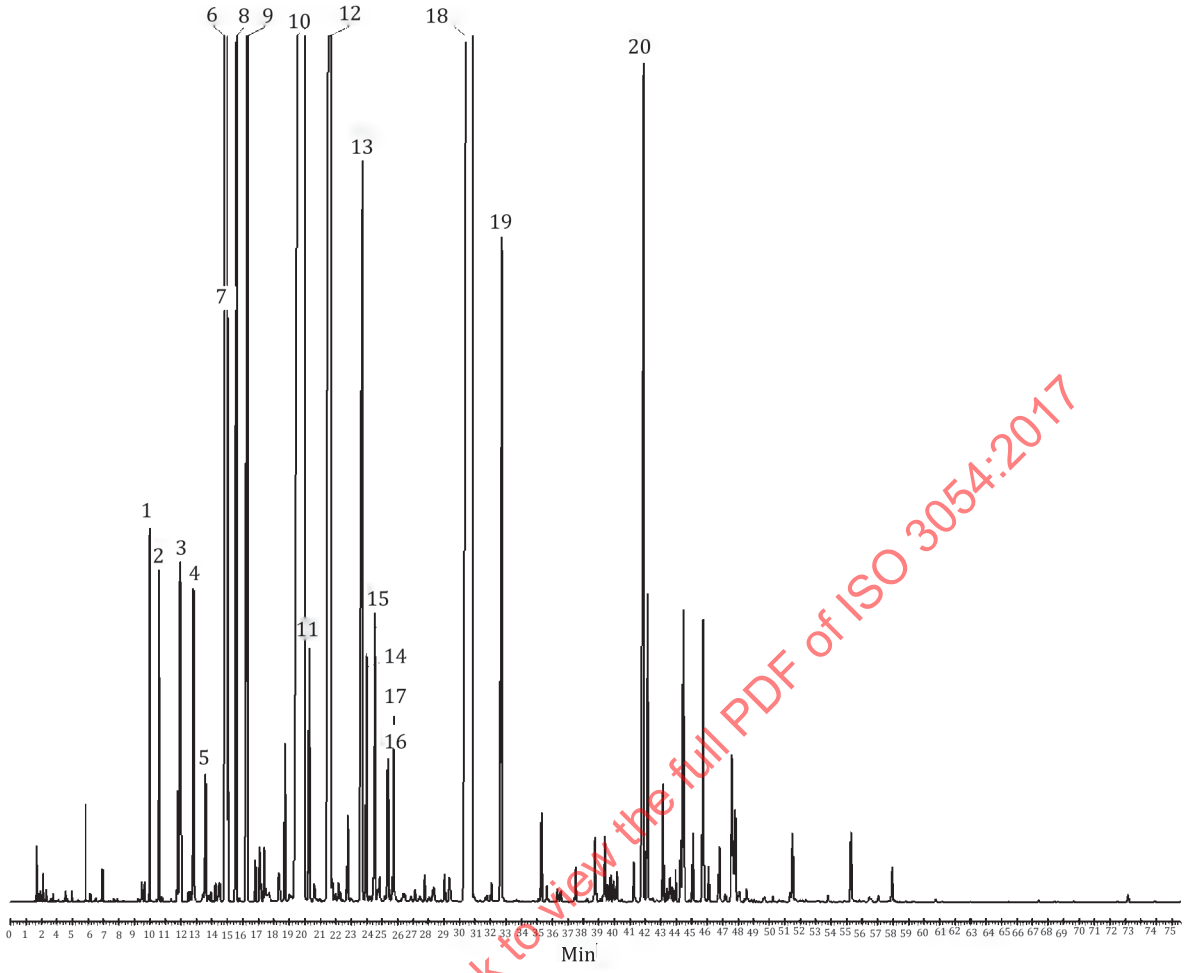
NOTE This volume is sufficient to carry out all the tests specified in this document at least once.

7 Packaging, labelling and marking

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

Annex A
(informative)

Typical chromatograms of the analysis by gas chromatography of the essential oil of lavandin Abrial (*Lavandula angustifolia* Mill. × *Lavandula latifolia* Medik.), French type



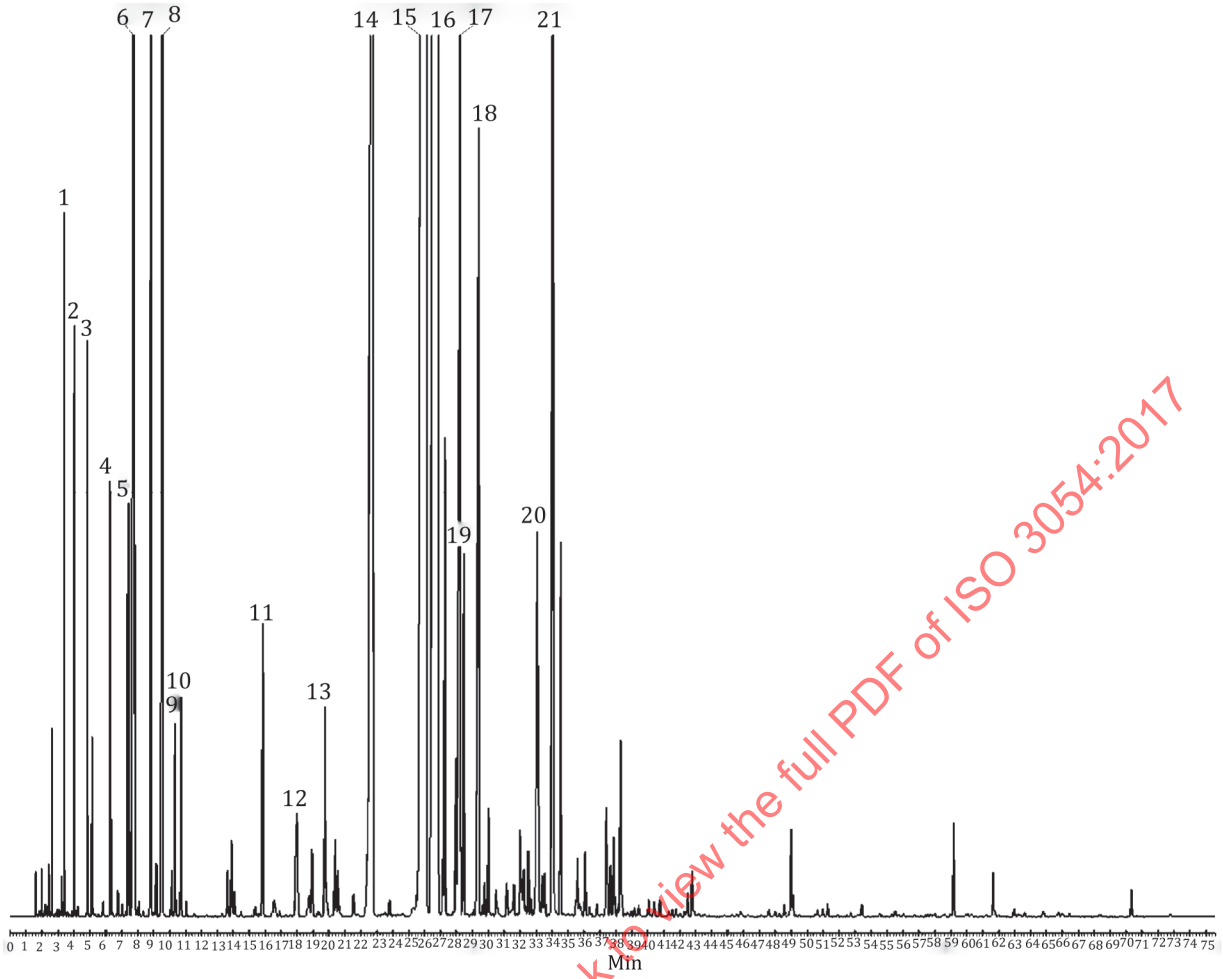
Peak identification

1 α-Pinene
2 Camphene
3 β-Pinene
4 Myrcene
5 Hexyl acetate
6 1,8-Cineole + β-Phellandrene
7 Limonene
8 (*Z*)-β-Ocimene
9 (*E*)-β-Ocimene
10 Linalool
11 1-Octen-3-yl acetate
12 Camphor
13 Borneol
14 Lavandulol
15 Terpinen-4-ol
16 α-Terpineol
17 Hexyl butyrate
18 Linalyl acetate
19 Lavandulyl acetate
20 β-Caryophyllene

Operating conditions

Column: capillary; length 50 m; internal diameter 0,2 mm
Stationary phase: polydimethyl siloxane
Film thickness: 0,25 µm
Oven temperature: temperature programming from 65 °C to 230 °C at a rate of 2 °C/min
Injector temperature: 230 °C
Detector temperature: 250 °C
Detector: flame ionization type
Carrier gas: hydrogen
Volume injected: 0,2 µl
Carrier gas flow rate: 1,1 ml/min
Split ratio: 1/100

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



Peak identification

1 α-Pinene + α-Thujene
2 Camphene
3 β-Pinene
4 Myrcene
5 Limonene
6 1,8-Cineole + *β*-Phellandrene
7 (*Z*)-β-Ocimene
8 (*E*)-β-Ocimene
9 Hexyl acetate
10 Terpinolene
11 1-Octen-3-yl acetate
12 Hexyl butyrate
13 1-Octen-3-ol
14 Camphor
15 Linalool
16 Linalyl acetate
17 Caryophyllene
18 Terpinen-4-ol
19 Lavandulyl acetate
20 Lavandulol (co-eluted)
21 Borneol + α-Terpineol

Operating conditions

Column: capillary; length 50 m; internal diameter 0,32 mm
Stationary phase: carbowax 20M[a]
Film thickness: 0,25 µm
Oven temperature: temperature programming from 65 °C to 230 °C at a rate of 2 °C/min
Injector temperature: 230 °C
Detector temperature: 250 °C
Detector: flame ionization type
Carrier gas: hydrogen
Volume injected: 0,2 µl
Carrier gas flow rate: 1,1 ml/min
Split ratio: 1/100

[a] Carbowax 20M 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 flash points of essential oils, which in most cases are flammable products.

A comparative study on the relevant methods of analysis (see ISO/TR 11018) 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.

B.2 Flashpoint of the essential oil of lavandin Abrial, French type

The mean values are +74 °C (see NOTE 1) or +77 °C (see NOTE 2).

NOTE 1 Obtained with "Setaflash"[1)] equipment.

NOTE 2 Obtained with "Luchaire"[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.