
**Essential oil of tarragon (*Artemisia
dracunculus* L.)**

Huile essentielle d'estragon (Artemisia dracunculus L.)



Reference number
ISO 10115:2013(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 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 10115 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

This second edition cancels and replaces the first edition (ISO 10115:1997) which has been technically revised.

Essential oil of tarragon (*Artemisia dracunculus* L.)

1 Scope

This International Standard specifies certain characteristics of the essential oil of tarragon (*Artemisia dracunculus* L.), intended to facilitate the 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 degrees 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 11024 (all parts), *Essential oils — General guidance on chromatographic profiles*

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

3 Terms and definitions

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

3.1

essential oil of tarragon

essential oil obtained by steam distillation of the leaves of tarragon (*Artemisia dracunculus* L.), of the Asteraceae family

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

4 Specifications

4.1 Appearance

Mobile, clear liquid.

4.2 Colour

Colourless to pale yellow.

4.3 Odour

Characteristic, with a hint of aniseed.

4.4 Relative density d_{20}^{20}

Minimum: 0,918.

Maximum: 0,950.

4.5 Refractive index at 20 °C

Minimum: 1,508.

Maximum: 1,518.

4.6 Optical rotation at 20 °C

Between + 2° and + 6°.

4.7 Miscibility in ethanol 90 % (volume fraction) at 20 °C

In order to obtain a clear solution with 1 volume of essential oil, no more than 4 volumes of ethanol 90 % (volume fraction) ethanol shall be required.

4.8 Acid value

Maximum: 1.

4.9 Chromatographic profile

Carry out the analysis of the essential oil by gas chromatography. On the obtained chromatogram, identify the representative and characteristic components listed in [Table 1](#) below. The percentage of each of these components, indicated by the integrator, shall be within the limits figuring in [Table 1](#). This whole constitutes the “chromatographic profile” of the essential oil.

Table 1 — Chromatographic profile

Component	Minimum	Maximum
	%	%
α -Pinene	0,5	2,0
Limonene	2,0	7,0
(Z)- β -Ocimene	5,0	13,0
(E)- β -Ocimene	6,0	12,0
Estragole	68,0	84,0
Methyleugenol	n.d. ^a	< 1,0

NOTE The chromatographic profile is normative, contrary to typical chromatograms given for information in [Annex A](#).

^a Not detectable.

4.10 Flashpoint

Information concerning the flashpoint is given in [Annex B](#).

5 Sampling

Sampling shall be performed in accordance with ISO 212.

Minimum volume of the 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 d_{20}^{20}

Determine the relative density in accordance with ISO 279.

6.2 Refractive index at 20 °C

Determine the refractive index in accordance with ISO 280.

6.3 Optical rotation at 20 °C

Determine the optical rotation in accordance with ISO 592.

6.4 Miscibility in 90 % (volume fraction) ethanol at 20 °C

Determine the miscibility in accordance with ISO 875.

6.5 Acid value

Determine the acid value in accordance with ISO 1242.

6.6 Chromatographic profile

Determine the chromatographic profile in accordance with ISO 11024.

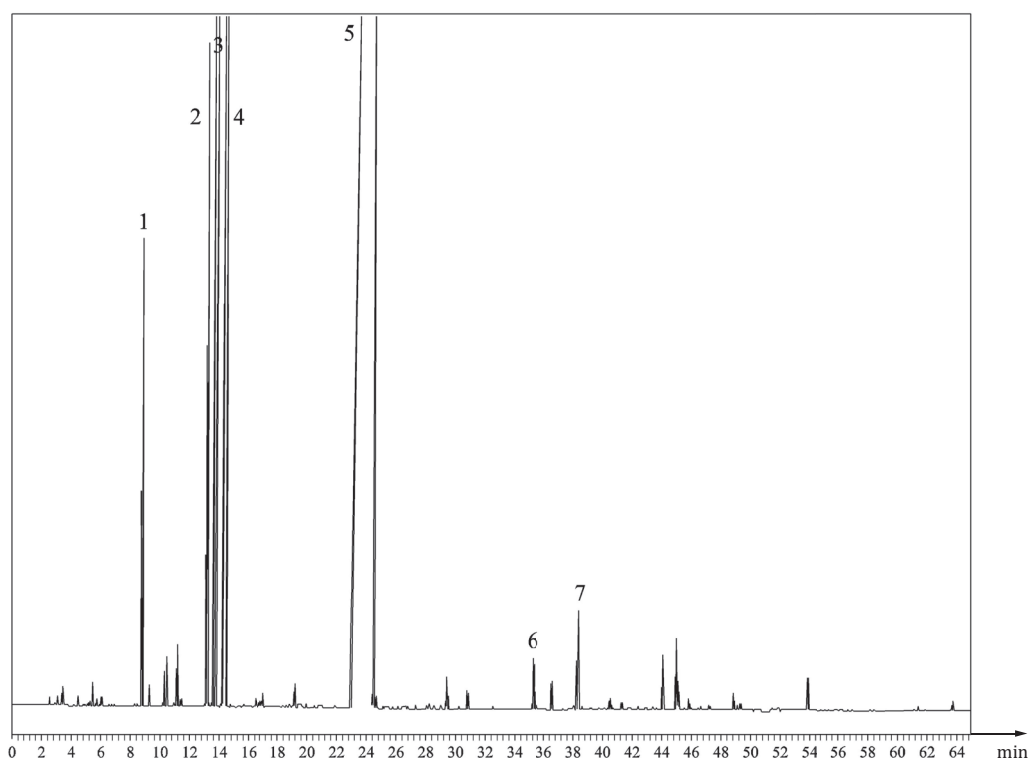
7 Packaging, labelling, marking and storage

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 tarragon (*Artemisia dracunculus* L.)**

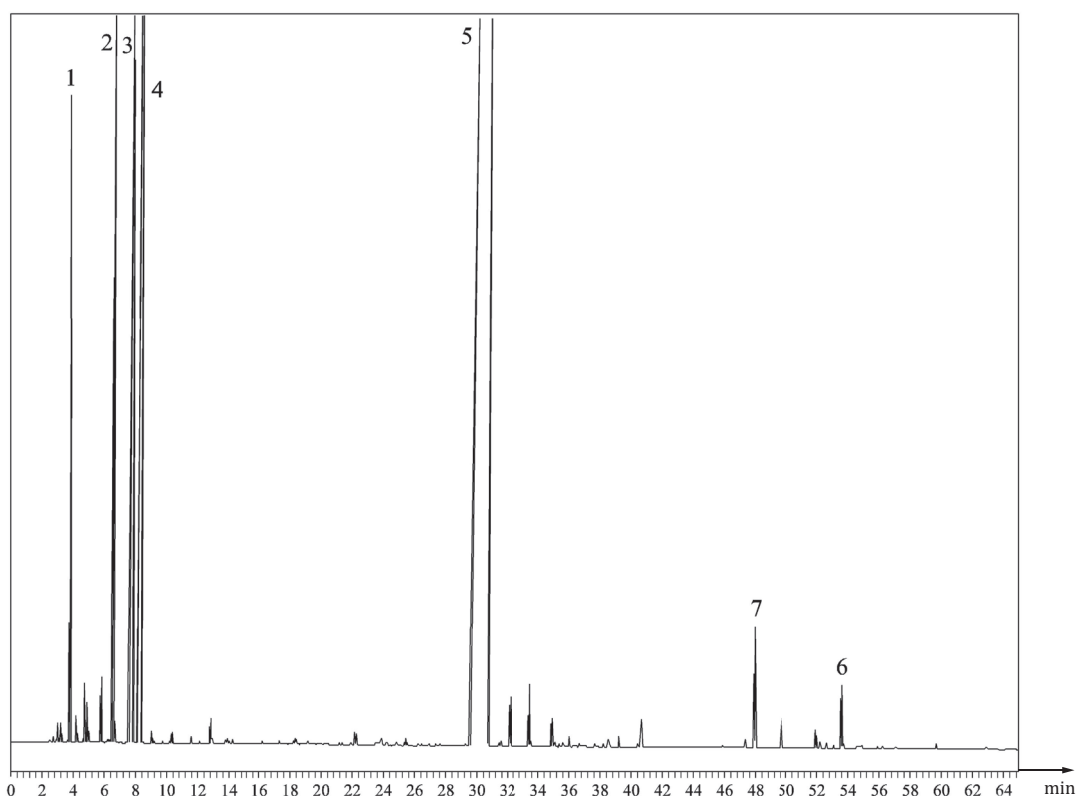
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Peak identification	Operating conditions
1 α -Pinene	Fused silica capillary column (HP-101®) length 50 m, internal diameter 0,2 mm
2 Limonene	100 % dimethylpolysiloxane
3 (<i>Z</i>)- β -Ocimene	Film thickness: 0,2 μ m
4 (<i>E</i>)- β -Ocimene	Oven temperature: programming temperature isothermal at 65 °C for 5 min, then from 65 °C to 95 °C at the rate of 2 °C/min, then isothermal at 95 °C for 5 min, then from 95 °C to 160 °C at the rate of 2,5 °C/min, then from 160 °C to 200 °C at the rate of 3 °C/min, then isothermal at 20 °C for 26 min
5 Estragole	Injector temperature: 230 °C
6 Eugenol	Detector temperature: 250 °C (flame ionization detector)
7 Methyleugenol	Carrier gas: hydrogen Volume injected: 0,2 μ l Carrier gas flow rate: 1,2 ml/min (constant flow rate) Split ratio: 1/100

NOTE HP-101® is an example of a suitable product available commercially. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of this product.

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

**Peak identification****Operating conditions**

1	α -Pinene	Fused silica capillary column (HP-20®) length 50 m, internal diameter 0,2 mm
2	Limonene	Polyethyleneglycol, MW 20000
3	(Z)- β -Ocimene	Film thickness: 0,1 μ m
4	(E)- β -Ocimene	Oven temperature: programming temperature isothermal at 65 °C for 5 min, then from 65 °C to 95 °C at the rate of 2 °C/min, then isothermal at 95 °C for 5 min, then from 95 °C to 160 °C at the rate of 2,5 °C/min, then from 160 °C to 200 °C at the rate of 3 °C/min, then isothermal at 200 °C for 26 min
5	Estragole	Injector temperature: 230 °C
6	Eugenol	Detector temperature: 250 °C (flame ionization detector)
7	Methyleugenol	Carrier gas: hydrogen Volume injected: 0,2 μ l Carrier gas flow rate: 1,2 ml/min (constant flow rate) Split ratio: 1/100

NOTE HP-20® is an example of a suitable product available commercially. This information is given for the convenience of users of this International Standard 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, transporters, insurance companies, safety department officials, etc., insist on knowing the flashpoint of essential oils which, in most cases, are inflammable products.

A comparative study of the appropriate methods of analysis (see ISO/TR 11018^[1]) found that it was difficult to standardize a single method, because:

- there is a very large number of essential oils and their chemical composition varies considerably;
- the sample volume recommended for use with certain appliances is incompatible with the high price of the essential oils;
- users cannot be under obligation to purchase one type of appliance rather than another from the moment that several appliances which can meet the desired objective exist.

Consequently, it was decided to give a mean value for the flashpoint annexed to each research study, and solely by way of indication, in order to meet the request of the relevant departments.

As far as possible, the method by which this value was obtained will be specified.

For all additional information, see ISO/TR 11018^[1].

B.2 Flashpoint of the essential oil of tarragon (*Artemisia dracunculus* L.)

The mean value is + 70 °C.

NOTE Value obtained using a «Setaflash» equipment¹⁾.

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

Bibliography

- [1] ISO/TR 11018:1997, *Essential oils — General guidance on the determination of flashpoint*
- [2] ISO/TR 21092, *Essential oils — Characterization*
- [3] ISO 3218, *Essential oils — Principles of nomenclature*

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