INTERNATIONAL STANDARD

ISO 19332

Second edition
2020-12

Essential oil of matricaria [*Matricaria chamomilla* L. syn. *Chamomilla recutita* (L.) Rauschert]

*Huile essentielle de matricaire [*Matricaria chamomilla *L. syn.* Chamomilla recutita *(L.) Rauschert]*

Reference number
ISO 19332:2020(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.

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 of the voluntary nature of standards, 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 www. iso. org/ iso/foreword. html.

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

This second edition cancels and replaces the first edition (ISO 19332:2007), which has been technically revised. The main changes to the previous edition are as follows:

— modification of the essential oil name and, consequently, the title;

— correction of components in the chromatographic profile table;

— deletion of the polar columns (Figure A.2 and Figure A.4).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Essential oil of matricaria [*Matricaria chamomilla* L. syn. *Chamomilla recutita* (L.) Rauschert]

1 Scope

This document specifies certain characteristics of the essential oil of matricaria [*Matricaria chamomilla* L. syn. *Chamomilla recutita* (L.) Rauschert] in order to facilitate assessment of its quality.

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 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:

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

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

3.1
essential oil of matricaria
essential oil obtained by steam distillation from the fresh or dried flower-heads or flowering tops of matricaria [*Matricaria chamomilla* L. syn. *Chamomilla recutita* (L.) Rauschert] produced mainly in Hungary and Egypt

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

4 Requirements

4.1 General requirements

Essential oil of matricaria [*Matricaria chamomilla* L. syn. *Chamomilla recutita* (L.) Rauschert] shall meet the requirements as given in Table 1.

Table 1 — Requirements for the essential oil of matricaria [*Matricaria chamomilla* L. syn. *Chamomilla recutita* (L.) Rauschert]

Characteristics	Requirements		ISO test method
	Egyptian type	Hungarian type	
Appearance	Slightly viscous, clear liquid		—
Colour	Greenish blue to dark blue	Dark blue	—
Odour	Characteristic		—
Relative density at 20 °C, d_{20}^{20}	0,910 to 0,970	0,910 to 0,950	ISO 279

4.2 Chromatographic profile

Analysis of the essential oil shall be carried out by gas chromatography. Determine the chromatographic profile in accordance with the ISO 11024 series. 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	Egyptian type		Hungarian type	
	Min. %	Maximum %	Min. %	Maximum %
trans-β-Farnesene	15,0	35,0	20,0	51,0
α-Bisabolol oxide B	2,0	8,0	2,0	21,0
α-Bisabolone oxide A	2,0	6,5	1,0	4,0
α-Bisabolol	1,0	10,0	15,0	40,0
Chamazulene	2,0	5,0	5,0	22,0
α-Bisabolol oxide A	35,0	50,0	2,0	27,0
NOTE The chromatographic profile is normative, contrary to typical chromatograms given for information in Annex A, see Figures A.1 and A.2.				

5 Flashpoint

Information on the flashpoint is given in Annex B.

6 Sampling

Sampling shall be performed in accordance with ISO 212. The minimum volume of the test sample is 25 ml.

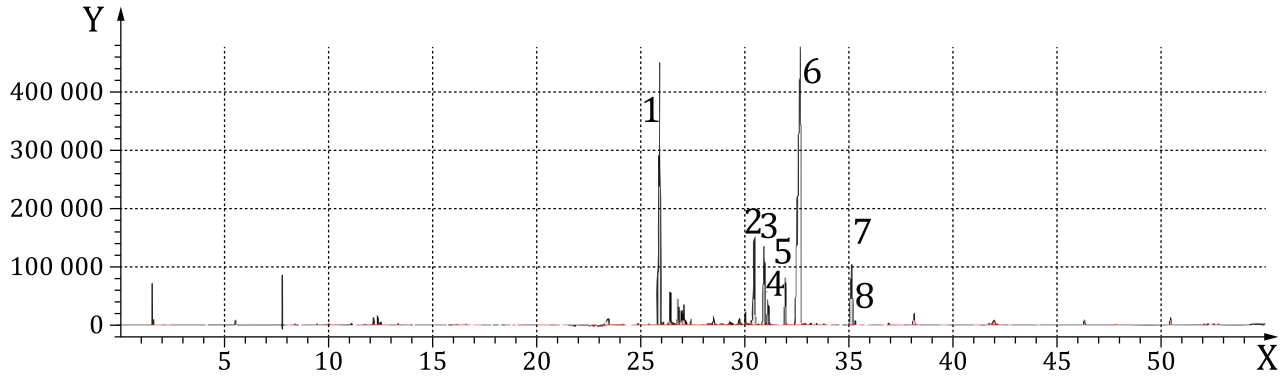
NOTE The volume allows each of the tests specified in this document to be carried out at least once.

7 Packaging, labelling, marking and storage

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 matricaria [*Matricaria chamomilla* L. syn. *Chamomilla recutita* (L.) Rauschert]



Peak identification

1 *trans*-β-Farnesene
2 α-Bisabolol oxide B
3 α-Bisabolone oxide A
4 α-Bisabolol
5 Chamazulene
6 α-Bisabolol oxide A
7 *(Z)*-Tonghaosu
8 *(E)*-Tonghaosu

Key

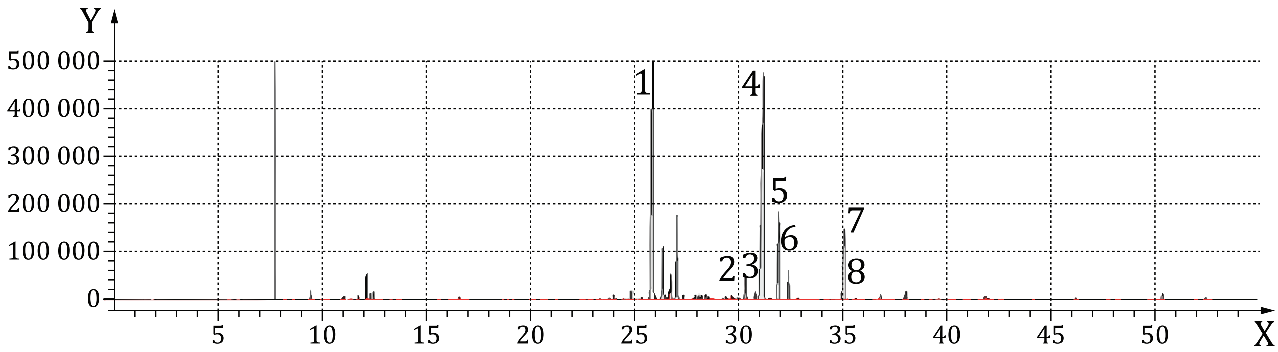
X time (min)
Y signal intensity (µV)

Operating conditions

Column: fused silica capillary, length 30 m, internal diameter 0,25 mm
Stationary phase: polydimethyl siloxane [DB1®][a]
Film thickness: 0,25 µm
Oven temperature: temperature programming from 100 °C to 260 °C at a rate of 3 °C/min
Injector temperature: 220 °C
Detector temperature: 250 °C
Detector: flame ionization type
Carrier gas: helium
Volume injected: 1 µl
Carrier gas flow rate: 1 ml/min
Split ratio: 1/100

[a] DB1 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 — Essential oil of matricaria, Egyptian type



Peak identification

1 *trans*-β-Farnesene
2 α-Bisabolol oxide B
3 α-Bisabolone oxide A
4 α-Bisabolol
5 Chamazulene
6 α-Bisabolol oxide A
7 *(Z)*-Tonghaosu
8 *(E)*-Tonghaosu

Key

X time (min)
Y signal intensity (μV)

Operating conditions

Column: fused silica capillary, length 30 m, internal diameter 0,25 mm
Stationary phase: polydimethyl siloxane [DB1®][a]
Film thickness: 0,25 μm
Oven temperature: temperature programming from 100 °C to 260 °C at a rate of 3 °C/min
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Detector temperature: 250 °C
Detector: flame ionization type
Carrier gas: helium
Volume injected: 1 μl
Carrier gas flow rate: 1 ml/min
Split ratio: 1/100

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Figure A.2 — Essential oil of matricaria, Hungarian type

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) 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 for certain test equipment is incompatible with the high price of 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 matricaria [*Matricaria chamomilla* L. syn. *Chamomilla recutita* (L.) Rauschert]

The mean value is:

Egyptian type	Hungarian type
+104 °C	+108 °C

NOTE Values obtained with “closed cup” equipment.