INTERNATIONAL STANDARD

ISO 19332

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Oil of blue chamomile [*Chamomilla recutita* (L.) Rauschert syn. *Matricaria chamomilla* auct.]

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

Reference number
ISO 19332:2007(E)

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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 19332 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

Oil of blue chamomile [*Chamomilla recutita* (L.) Rauschert syn. *Matricaria chamomilla* auct.]

1 Scope

This International Standard specifies certain characteristics of the oil of blue chamomile [*Chamomilla recutita* (L.) Rauschert syn. *Matricaria chamomilla* auct.], 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 11024-1, *Essential oils — General guidance on chromatographic profiles — Part 1: Preparation of chromatographic profiles for presentation in standards*

ISO 11024-2, *Essential oils — General guidance on chromatographic profiles — Part 2: Utilization of chromatographic profiles of samples of essential oils*

3 Terms and definitions

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

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

NOTE For information on the CAS number, see ISO/TR 21092.

4 Requirements

4.1 Appearance

Slightly viscous, clear liquid.

4.2 Colour

Egyptian type	Hungarian type
Greenish blue to dark blue	Dark blue

4.3 Odour

Characteristic.

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

	Egyptian type	Hungarian type
Minimum	0,910	0,910
Maximum	0,970	0,950

4.5 Chromatographic profile

Analysis of the essential oil shall be carried out by gas chromatography. In the chromatogram obtained, the representative and characteristic components shown in Table 1 shall be identified. 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	Egyptian type		Hungarian type	
	Minimum %	Maximum %	Minimum %	Maximum %
trans-β-Farnesene	15	35	20	51
α-Bisabolol oxide B	2	8	2	21
Bisabolone oxide A	2	6,5	1	4
α-Bisabolol	1	10	15	40
Chamazulene	2	5	5	22
α-Bisabolol oxide A	35	50	2	27
NOTE The chromatographic profile is normative, contrary to typical chromatograms given for information in Annex A.				

4.6 Flashpoint

Information on the flashpoint is given in Annex B.

5 Sampling

See 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

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

See ISO 279.

6.2 Chromatographic profile

See ISO 11024-1 and ISO 11024-2.

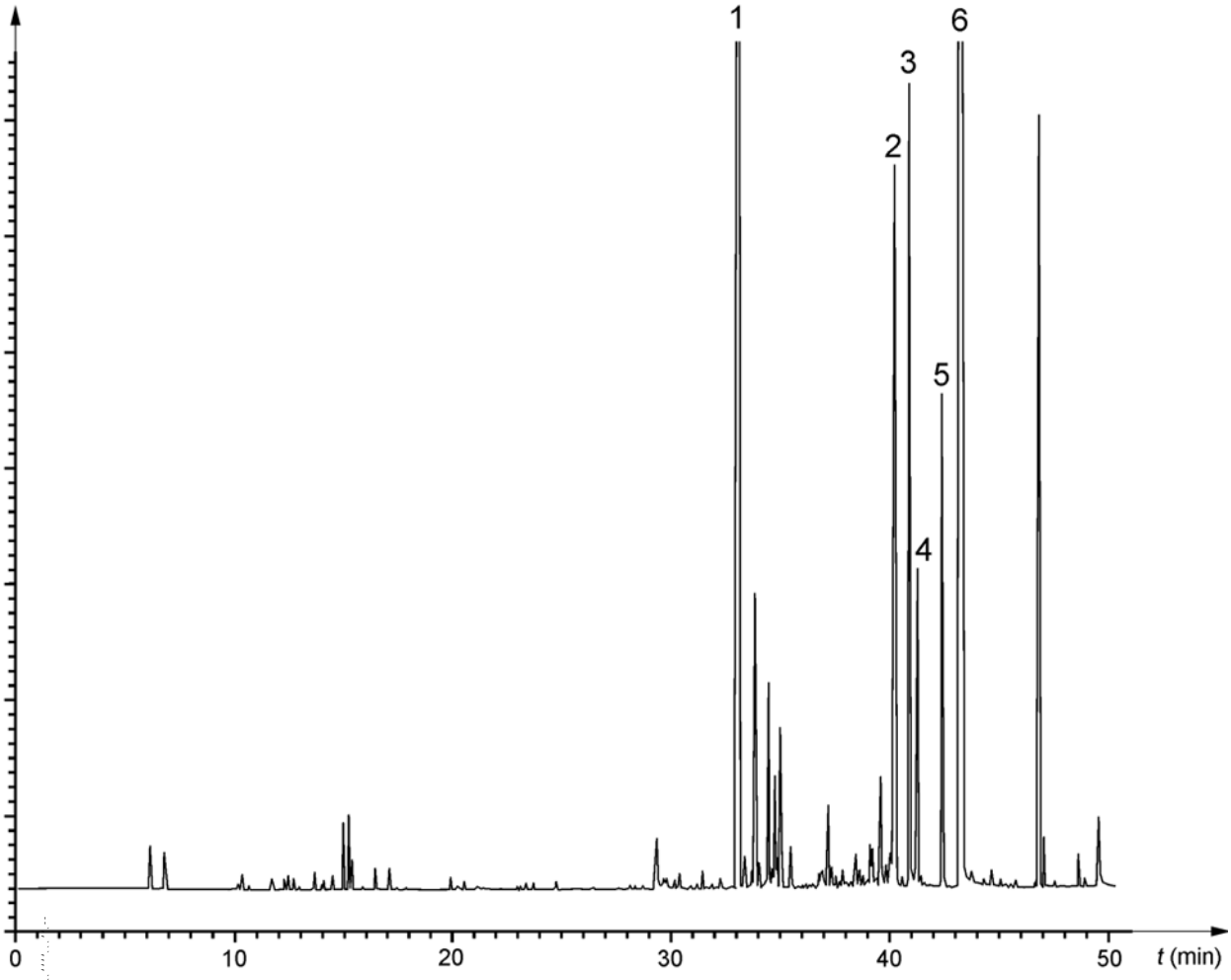
7 Packaging, labelling, marking and storage

See ISO/TR 210 and ISO/TR 211.

Annex A
(informative)

Typical chromatograms of the analysis by gas chromatography of the essential oil of blue chamomile [*Chamomilla recutita* (L.) Rauschert syn. *Matricaria chamomilla* auct.]

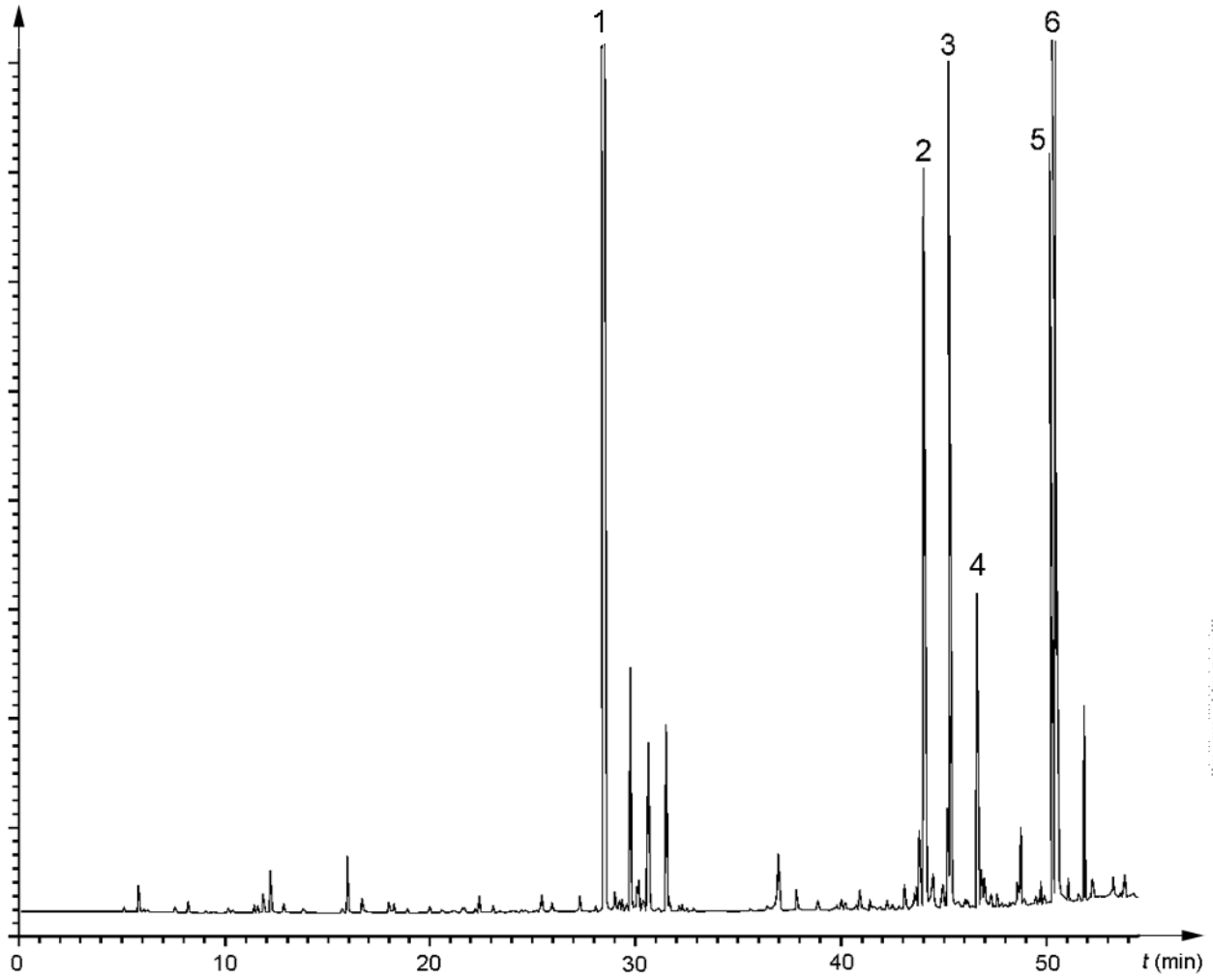
A.1 Essential oil of blue chamomile, Egyptian type



Peak identification		Operating conditions
1	*trans*-β-Farnesene	Column: fused silica capillary, length 30 m, internal diameter 0,25 mm
2	α-Bisabolol oxide B	Stationary phase: polydimethyl siloxane [SPB™ –1 (SE-30®)[1)]]
3	Bisabolone oxide A	Film thickness: 0,25 µm
4	α-Bisabolol	Oven temperature: temperature programming from 50 °C to 180 °C at a rate of 3 °C/min and 180 °C to 220 °C at a rate of 10 °C/min
5	Chamazulene	Injector temperature: 260 °C
6	α-Bisabolol oxide A	Detector temperature: 280 °C
		Detector: flame ionization type
		Carrier gas: helium
		Volume injected: 1 µl
		Carrier gas flow rate: 1 ml/min
		Split ratio: 1/50

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

1) SPB™ –1 (SE-30®) 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.

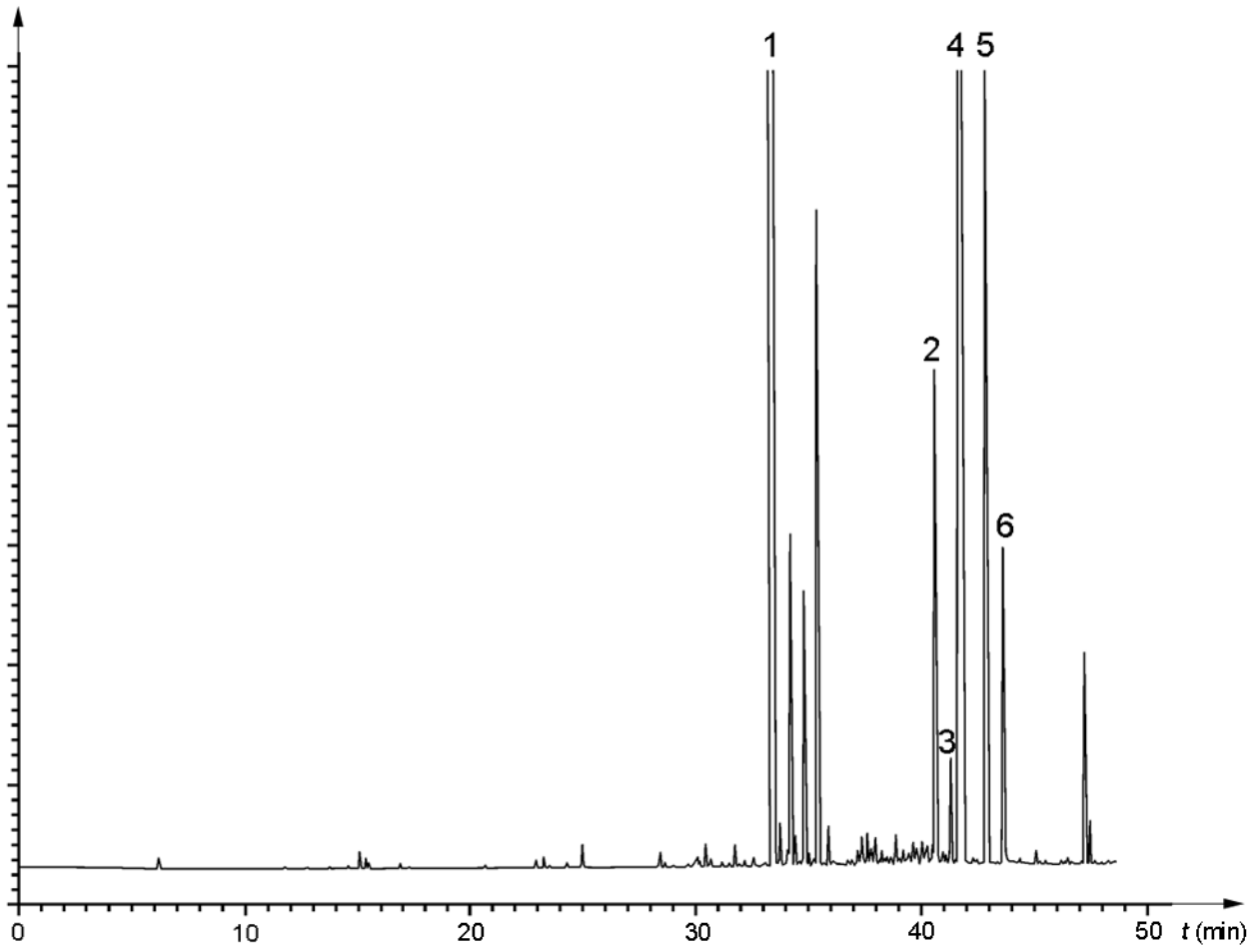


Peak identification		Operating conditions
1	*trans*-β-Farnesene	Column: fused silica capillary, length 30 m, internal diameter 0,25 mm
2	α-Bisabolol oxide B	Stationary phase: polyethylene glycol [Supelcowax™ –10® [2)]]
3	Bisabolone oxide A	Film thickness: 0,25 µm
4	α-Bisabolol	Oven temperature: temperature programming from 50 °C to 180 °C at a rate of 3 °C/min and 180 °C to 220 °C at a rate of 10 °C/min
5	Chamazulene	Injector temperature: 260 °C
6	α-Bisabolol oxide A	Detector temperature: 280 °C
		Detector: flame ionization type
		Carrier gas: helium
		Volume injected: 1 µl
		Carrier gas flow rate: 1 ml/min
		Split ratio: 1/50

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

2) Supelcowax™ –10® 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.

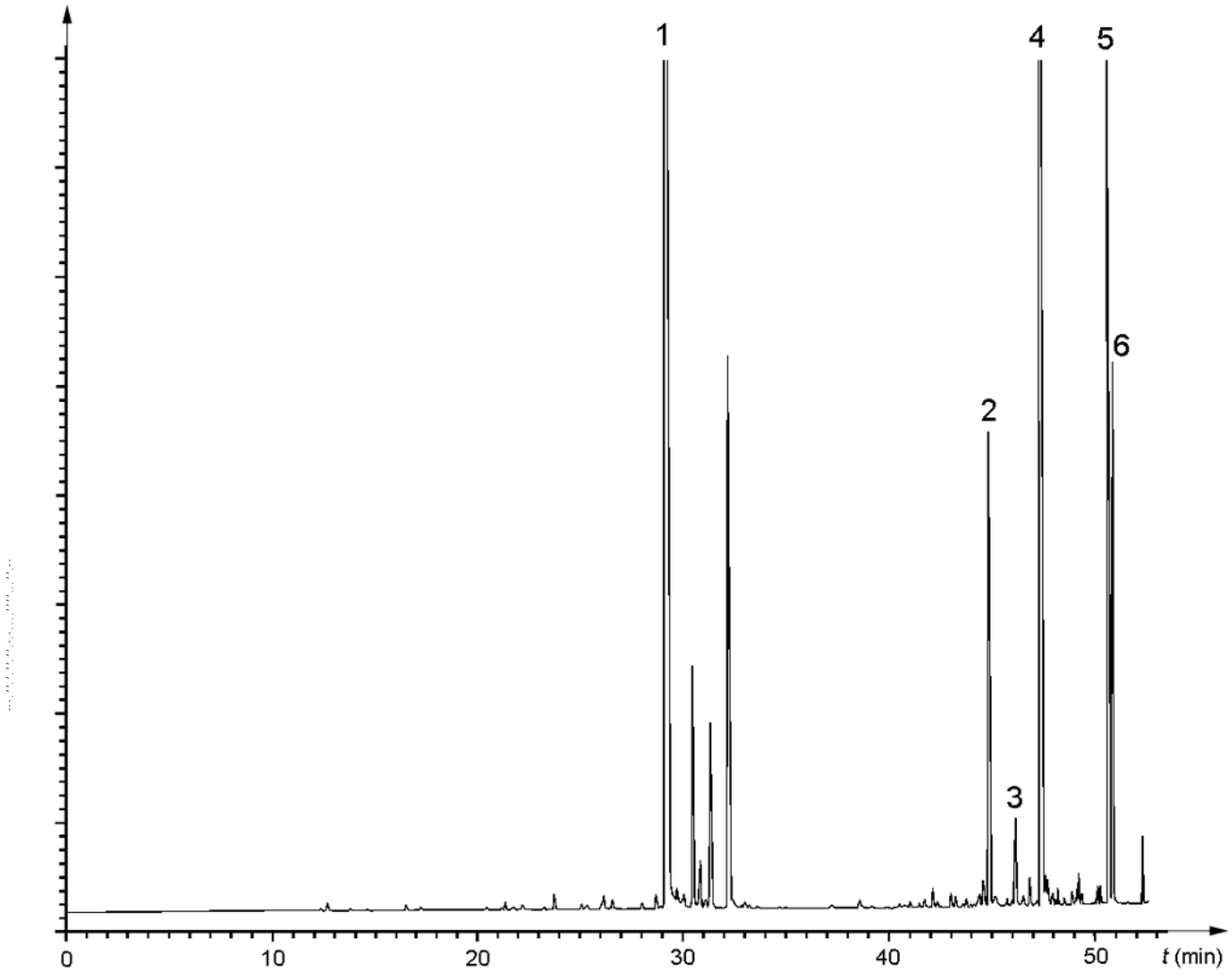
A.2 Essential oil of blue chamomile, Hungarian type



Peak identification		Operating conditions
1	*trans*-β-Farnesene	Column: fused silica capillary, length 30 m, internal diameter 0,25 mm
2	α-Bisabolol oxide B	Stationary phase: polydimethyl siloxane [SPB™ –1 (SE-30®)[3)]]
3	Bisabolone oxide A	Film thickness: 0,25 µm
4	α-Bisabolol	Oven temperature: temperature programming from 50 °C to 180 °C at a rate of 3 °C/min and 180 °C to 220 °C at a rate of 10 °C/min
5	Chamazulene	
6	α-Bisabolol oxide A	Injector temperature: 260 °C
		Detector temperature: 280 °C
		Detector: flame ionization type
		Carrier gas: helium
		Volume injected: 1 µl
		Carrier gas flow rate: 1 ml/min
		Split ratio: 1/50

Figure A.3 — Typical chromatogram taken on an apolar column

3) SPB™ –1 (SE-30®) 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.



Peak identification		Operating conditions
1	*trans*-β-Farnesene	Column: fused silica capillary, length 30 m, internal diameter 0,25 mm
2	α-Bisabolol oxide B	Stationary phase: polyethylene glycol [Supelcowax™ –10® [4)]]
3	Bisabolone oxide A	Film thickness: 0,25 µm
4	α-Bisabolol	Oven temperature: temperature programming from 50 °C to 180 °C at a rate of 3 °C/min and 180 °C to 220 °C at a rate of 10 °C/min
5	Chamazulene	
6	α-Bisabolol oxide A	Injector temperature: 260 °C
		Detector temperature: 280 °C
		Detector: flame ionization type
		Carrier gas: helium
		Volume injected: 1 µl
		Carrier gas flow rate: 1 ml/min
		Split ratio: 1/50

Figure A.4 — Typical chromatogram taken on a polar column

4) Supelcowax™ –10® 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.

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 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 in an informative annex to each International Standard in order to meet the requirements of the interested parties.

The equipment with which this value was obtained should be specified.

For further information see ISO/TR 11018.

B.2 Flashpoint of the essential oil of blue chamomile

The mean value is:

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

NOTE Values obtained with “closed cup” equipment.

Bibliography

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

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

[3] GILDEMEISTER, E., HOFFMANN, F. *Die ätherischen Öle* [Volatile oils], Treibs W., ed., Vol. 7, pp. 649-60, Akademie-Verlag, Berlin, 1961

[4] HÉTHELYI, É., PÁLFINÉ-LEDNICZKY, M., WILDE, F.P., ZÁMBÓ, I., PÁLINKÁS, J. Gas chromatographic examination of oil and extract of chamomile. *J. Oil Soap Cosmetics* 1999, **48**(1), pp. 16-32

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