BS ISO 9841:2013

BSI Standards Publication

Essential oil of hyssop *(Hyssopus officinalis L. ssp. officinalis)*

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee AW/54, Essential oils.

A list of organizations represented on this committee can be obtained on request to its secretary.

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BS ISO 9841:2013

INTERNATIONAL STANDARD

ISO 9841

Third edition
2013-10-15

Essential oil of hyssop (*Hyssopus officinalis* L. ssp. *officinalis*)

*Huile essentielle d'hysope (*Hyssopus officinalis *L. ssp.* officinalis*)*

Reference number
ISO 9841:2013(E)

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Foreword

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The committee responsible for this document is ISO/TC 54, *Essential oils*.

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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: http://www.iso.org/iso/home/standards_development/resources-for-technical-work/foreword.htm"

This third edition cancels and replaces the second edition (ISO 9841:2007), which has been technically revised.

INTERNATIONAL STANDARD ISO 9841:2013(E)

Essential oil of hyssop (*Hyssopus officinalis* L. ssp. *officinalis*)

1 Scope

This International Standard specifies certain characteristics of essential oil of hyssop (*Hyssopus officinalis* L. ssp *officinalis*), with a view to facilitating the assessment of its quality.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 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 hyssop
essential oil obtained by steam distillation of the leaves of *Hyssopus officinalis* L. ssp *officinalis* of the Lamiaceae family

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

4 Requirements

4.1 Appearance

Clear, mobile liquid.

4.2 Colour

Pale yellow to brown yellow.

4.3 Odour

Characteristic.

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

Minimum: 0,920.

Maximum: 0,950.

4.5 Refractive index at 20 °C

Minimum: 1,475 0.

Maximum: 1,486 0.

4.6 Optical rotation at 20 °C

Between –25° and –10°.

4.7 Acid value

Less than or equal to 2,0.

4.8 Typical chromatogram

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

Components	Minimum %	Maximum %
α-Pinene	0,4	1,5
β-Pinene	7,0	20,0
Sabinene	1,0	3,5
Limonene	0,6	4,0
Myrtenyl methyl ether	0,9	3,0
Pinocamphone	8,0	25
Isopinocamphone	25,0	45,0
β-Bourbonene	0,8	2,6
β-Caryophyllene	1,0	3,0
Alloaromadendrene	1,0	3,0
Germacrene D	1,2	4,5
Elemol	0,2	2,5
Spathulenol	0,1	1,5
NOTE The chromatographic profile is normative, contrary to typical chromatograms given for information in Annex A.		

4.9 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: 50 ml.

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

6 Test methods

6.1 Relative density at 20 °C, 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 Acid value

Determine the acid value in accordance with ISO 1242.

6.5 Chromatographic profile

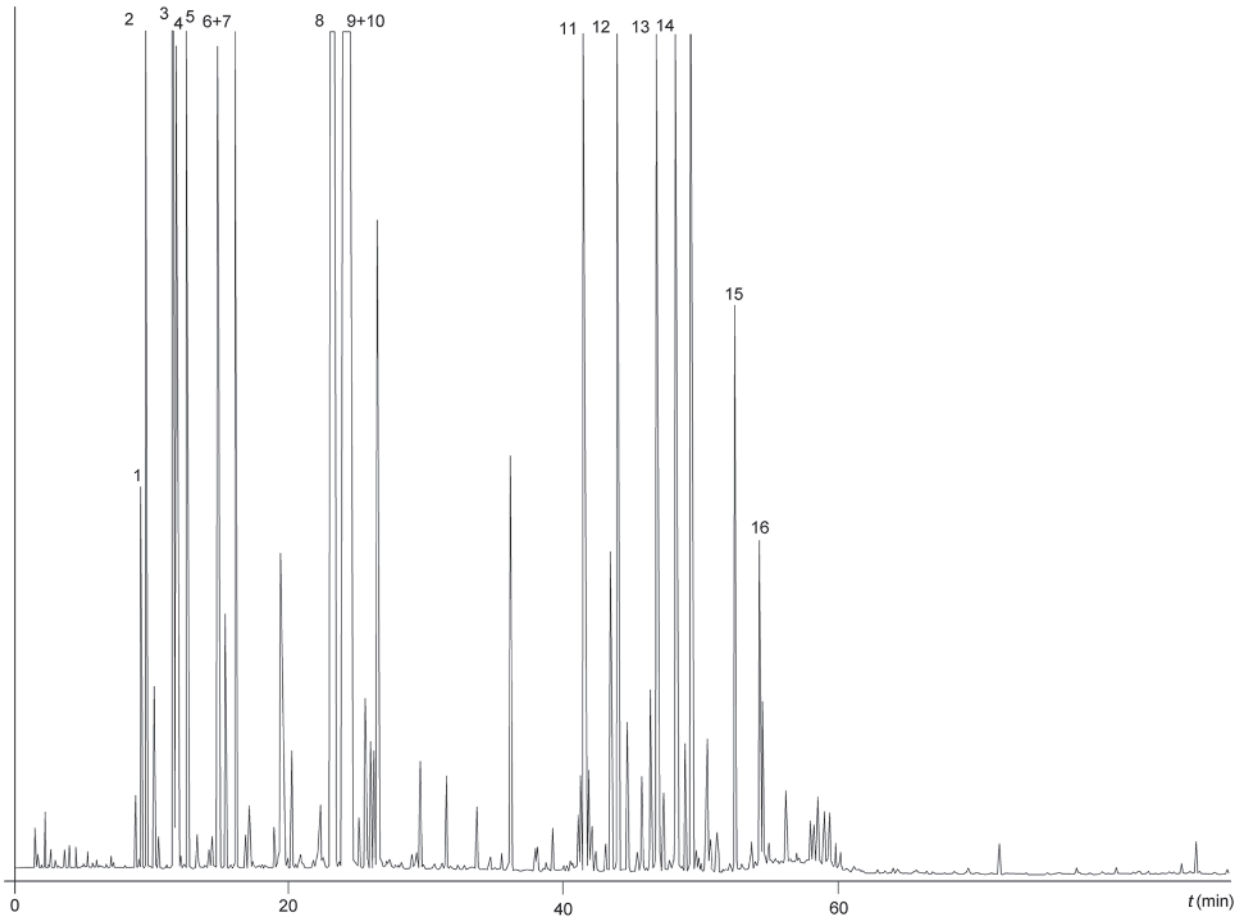
Determine the chromatographic profile in accordance with ISO 11024.

7 Packaging, labelling, and marking

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 hyssop *(Hyssopus officinalis* L. ssp *officinalis)*



Key

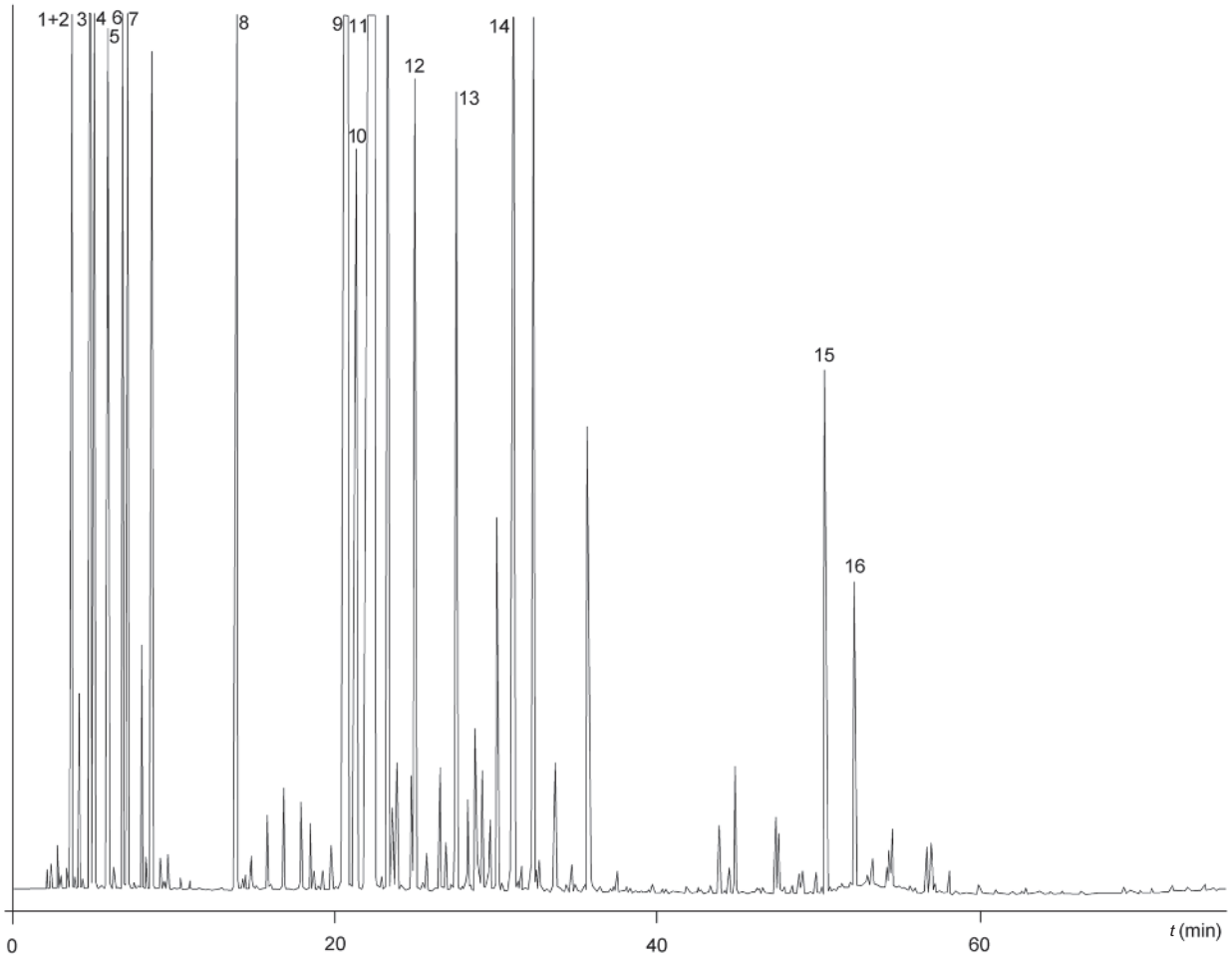
Peak identification

1 α-thujene
2 α-pinene
3 Sabinene
4 β-pinene
5 Myrcene
6 1,8-cineole + β-phellandrene
7 Limonene
8 Pinocamphone
9 isopinocamphone
10 Myrtenyl methyl ether
11 β-bourbonene
12 β-caryophyllene
13 Alloaromadendrene
14 Germacrene D
15 Elemol
16 Spathulenol
t Time

Operating conditions

Column: silica capillary; length, 50 m; internal diameter, 0,2 mm
Stationary phase: poly(dimethyl siloxane)
Film thickness: 0,25 µm
Oven temperature: 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 of essential oil of hyssop taken on an apolar column



Key

Peak identification		**Operating conditions**
1	α-thujene	Column: silica capillary; length, 50 m; internal diameter, 0,2 mm
2	α-pinene	Stationary phase: polyethylene glycol (Carbowax 20 M®[a])
3	β-pinene	Film thickness: 0,25 µm
4	Sabinene	Oven temperature: 65 °C to 230 °C, at a rate of 2 °C/min
5	Myrcene	Injector temperature: 230 °C
6	Limonene	Detector temperature: 250 °C
7	1,8-cineole + β-phellandrene	Detector: flame ionisation type
8	Myrtenyl methyl ether	Carrier gas: hydrogen
9	Pinocamphone	Volume injected: 0,2 µl
10	β-bourbonene	Carrier gas flow rate: 1,1 ml/min
11	isopinocamphone	Split ratio: 1/100
12	β-caryophyllene	
13	Alloaromadendrene	
14	Germacrene D	
15	Elemol	
16	Spathulenol	
t	Time	

[a] 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 of essential oil of hyssop 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, and

— 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 hyssop *(Hyssopus officinalis* L. ssp *officinalis)*

The mean value is +59 °C.

NOTE Obtained with “Luchaire” equipment[1)].

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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