INTERNATIONAL STANDARD

ISO 13171

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Essential oil of oregano [*Origanum vulgare* L. subsp. *hirtum* (Link) letsw]

*Huile essentielle d'origan [*Origanum vulgare *L. subsp.* hirtum *(Link) letsw]*

Reference number
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Foreword

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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: Foreword – Supplementary information

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

Essential oil of oregano [*Origanum vulgare* L. subsp. *hirtum* (Link) letsw]

1 Scope

This International Standard specifies certain characteristics of the essential oil of oregano [*Origanum vulgare* L. subsp. *hirtum* (Link) letsw], in order to facilitate 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/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 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 oregano
essential oil obtained by steam distillation of the flowering tops of *Origanum vulgare* L. subsp. *hirtum* (Link) letsw, of the Lamiaceae family, growing mainly in Germany, Netherlands and Hungary

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

4 Requirements

4.1 Essential oil of oregano [*Origanum vulgare* L. subsp. *hirtum* (Link) letsw] shall meet the requirements as given in Table 1.

Table 1 — Requirements for the essential oil of oregano [*Origanum vulgare* L. subsp. *hirtum* (Link) letsw]

Characteristics	Requirements	Test method
Appearance	Clear, mobile liquid	—
Colour	Yellow to dark brownish red	—
Odour	Characteristic, aromatic, phenolic, with a slightly spicy base	—
Relative density at 20 °C d_{20}^{20}	0,930 - 0,955	ISO 279
Refractive index at 20 °C	1,500 - 1,513	ISO 280
Optical rotation at 20 °C	Between –5° and +2°	ISO 592
Miscibility in ethanol, 80 % (volume fraction), at 20 °C	It shall not be necessary to use more than 2 volumes of ethanol, 80 % (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

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 %
α-Thujene	0,2	1,5
α-Pinene	0,2	2,5
Myrcene	0,5	3,0
α-Terpinene	0,5	2,0
p-Cymene	4,0	10,0
γ-Terpinene	3,0	9,0
Linalool	traces[a]	3,0
Terpinen-4-ol	0,5	2,0
Thymol	0,5	5,0
Carvacrol	60,0	80,0
β-Caryophyllene	0,5	4,0

[a] traces: < 0,01 %.

NOTE The chromatographic profile is normative, contrary to typical chromatograms given for information in Annex A.

5 Flash point

Information on the flash point is given in Annex B.

6 Sampling

Sampling shall be performed in accordance with ISO 212.

Minimum volume of test sample: 25 ml.

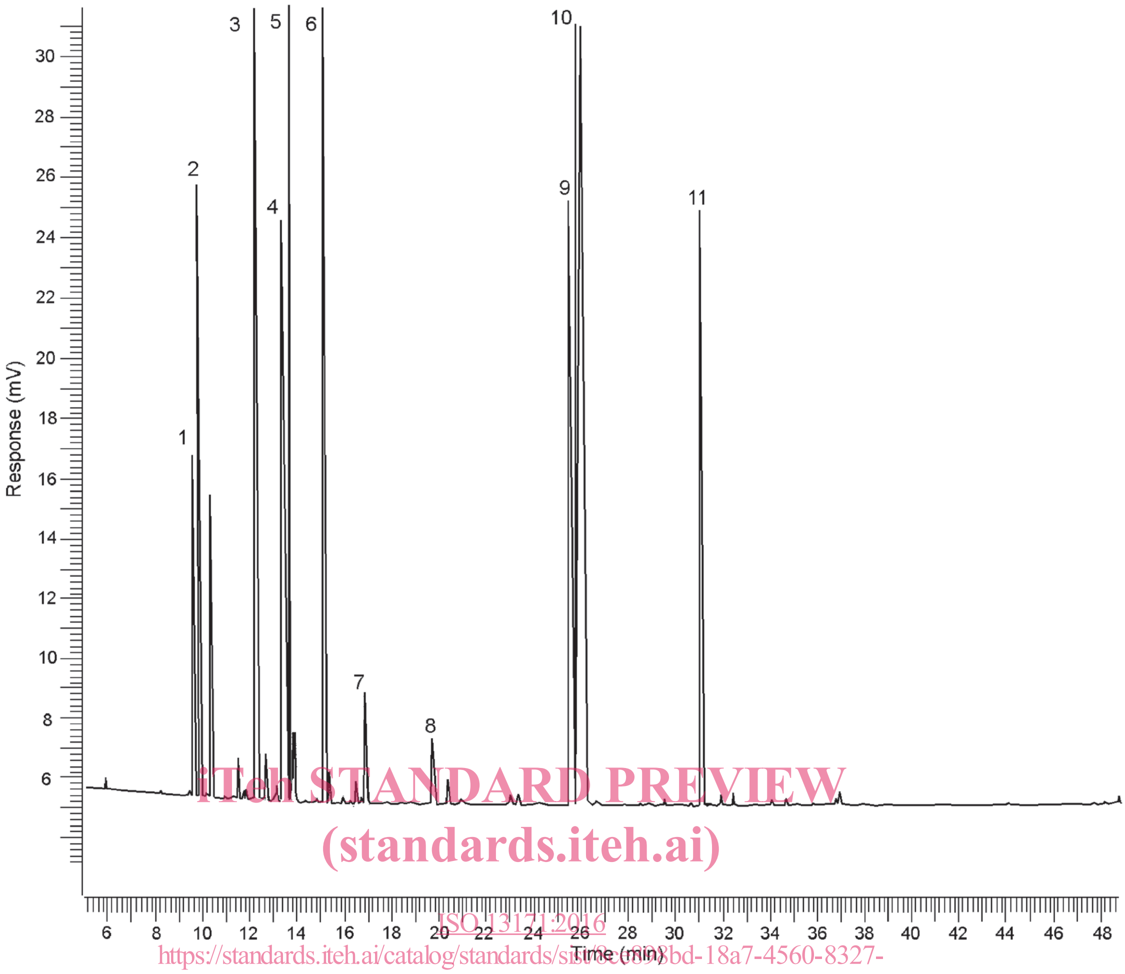
NOTE This volume allows each of the tests specified in this International Standard to be carried out at least once.

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 oregano [*Origanum vulgare* L. subsp. *hirtum* (Link) letsw]



Peak identification

1	α-Thujene
2	α-Pinene
3	Myrcene
4	α-Terpinene
5	*p*-Cymene
6	γ-Terpinene
7	Linalool
8	Terpinen-4-ol
9	Thymol
10	Carvacrol
11	β-Caryophyllene

Operating conditions

Column: fused capillary silica, 30 m length, 0,25 mm internal diameter

Stationary phase: SPB™ –1 (SE-30)[a]

Film thickness: 0,25 µm

Oven temperature: programming temperature 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

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

[a] SPB™ –1 (SE-30) 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 — Typical chromatogram taken on an apolar column

