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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Oil of lavandin grosso [*Lavandula angustifolia*
P. Miller × *Lavandula latifolia* (Linnaeus f.) Medikus]

Huile essentielle de lavandin grosso [*Lavandula angustifolia* P. Miller × *Lavandula latifolia*
(Linnaeus f.) Medikus]

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Reference number
ISO 8902:1987 (E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8902 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Oil of lavandin grosso [*Lavandula angustifolia* P. Miller × *Lavandula latifolia* (Linnaeus f.) Medikus]

1 Scope and field of application

This International Standard specifies certain characteristics of oil of lavandin grosso [*Lavandula angustifolia* P. Miller × *Lavandula latifolia* (Linnaeus f.) Medikus], with a view to facilitating the assessment of its quality.

2 References

ISO/R 210, *Essential oils — Packing.*

ISO/R 211, *Essential oils — Labelling and marking 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 709, *Essential oils — Determination of ester value.*

ISO 875, *Essential oils — Determination of miscibility in ethanol.*

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

3 Definition

oil of lavandin grosso : The oil obtained by steam distillation from the freshly cut flowering tops of a particular clone, called "grosso", of lavandin [*Lavandula angustifolia* P. Miller × *Lavandula latifolia* (Linnaeus f.) Medikus], cultivated in the South of France.

4 Requirements

4.1 Appearance

Mobile, clear liquid.

4.2 Colour

Light yellow.

4.3 Odour

Characteristic of lavender, very slightly camphoraceous.

4.4 Relative density at 20/20 °C

Minimum : 0,890

Maximum : 0,898

4.5 Refractive index at 20 °C

Minimum : 1,458 0

Maximum : 1,462 0

4.6 Optical rotation at 20 °C

Range from -7° to -4°

4.7 Miscibility in 70 % (V/V) ethanol at 20 °C

1 volume of the oil shall not require more than 3 volumes of 70 % (V/V) ethanol at 20 °C to give a clear solution.

4.8 Acid value

Maximum : 1,0

4.9 Ester value

Minimum : 100 — corresponding to an ester content of 35 %, expressed as linalyl acetate.

Maximum : 137 — corresponding to an ester content of 48 %, expressed as linalyl acetate.

4.10 Assessment of chromatographic profile

Evaluate the quantities of the following characteristic constituents of the oil from the chromatographic profile

obtained¹⁾. The proportions of these constituents, calculated in relation to the sum of all peak areas, and assuming all response factors to be identical, shall be as shown in the following table.

Constituent	Proportion (%)	
	min.	max.
1,8-Cineole	4	7
Camphor	6	8
Linalol	25	35
Linalyl acetate	28	38
Terpinene-1 ol-4	2	4
Borneol	1,5	3
Lavandulol	0,3	0,5
Lavandulyl acetate	1,5	3

4.11 Flash point

(To be completed later.)

5 Sampling

See ISO 212.

Minimum volume of the final sample : 50 ml

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

6 Methods of test

6.1 Relative density at 20/20 °C

See ISO 279.

6.2 Refractive index at 20 °C

See ISO 280.

6.3 Optical rotation at 20 °C

See ISO 592.

6.4 Miscibility in 70 % (V/V) ethanol at 20 °C

See ISO 875.

6.5 Acid value

See ISO 1242.

6.6 Ester value

See ISO 709.

Duration of hydrolysis : 30 min

Relative molecular mass of linalyl acetate, $M_r = 196$

6.7 Chromatographic profile

See annex, for information only.

6.8 Flash point

(To be completed later.)

7 Packing, labelling and marking

See ISO/R 210 and ISO/R 211.

1) See the chromatographic profiles given as examples in the annex.

Annex

Typical chromatograms

(This annex does not form part of the standard.)

Sample : oil of lavandin grosso

Column : fused silica capillary, length 50 m, diameter 0,27 mm

Stationary phase : polyethylene glycol 20 000

Oven temperature : temperature programme : 15 min at 70 °C, then 2 °C/min
up to 180 °C

Injection temperature : 200 °C

Detection temperature : 200 °C

Detector : flame ionization

Carrier gas : helium

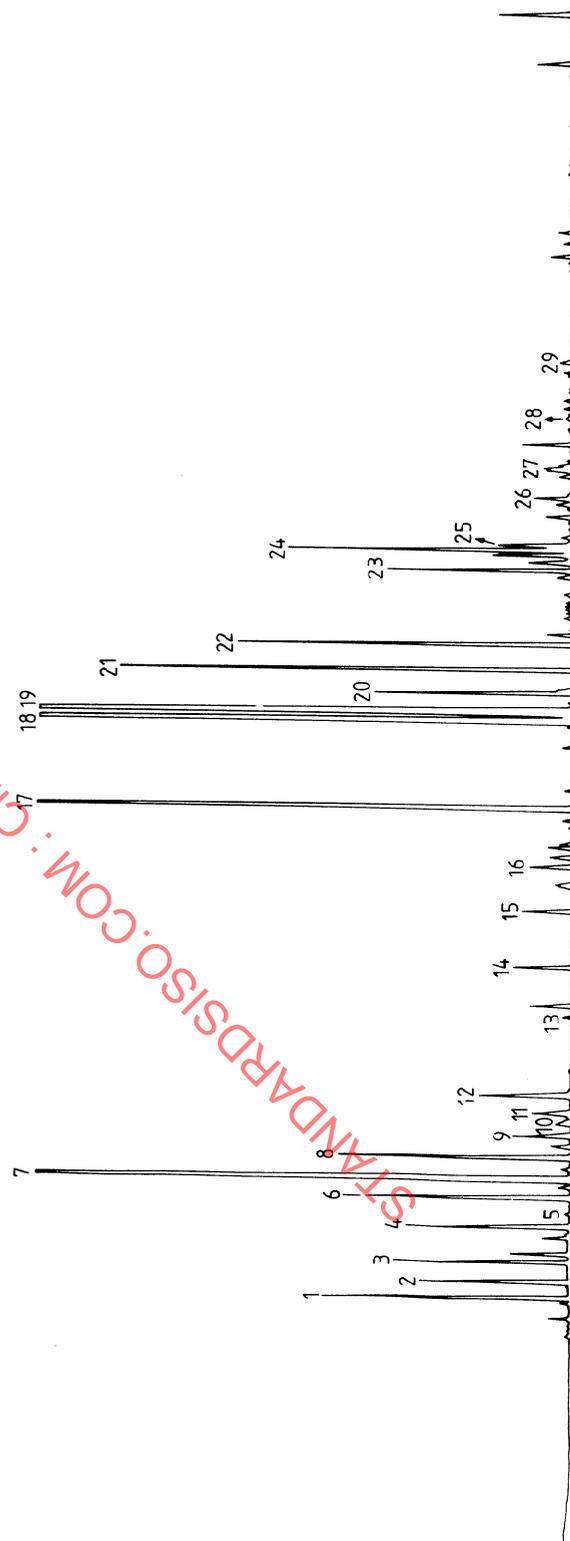
Carrier gas flow rate : 0,7 ml/min

Volume injected : 0,1 µl

Split ratio : 90/10

Constituents

1	α -Pinene + <i>tert</i> -methylbutanol	16	Octene-1 ol-3
2	Camphene	17	Camphor
3	β -Pinene	18	Linalol
4	Myrcene	19	Linalyl acetate
5	α -Terpinene	20	β -Caryophyllene
6	Limonene	21	Terpinene-1 ol-4
7	1,8-Cineole	22	Lavandulyl acetate
8	<i>cis</i> - β -Ocimene	23	Lavandulol
9	<i>trans</i> - β -Ocimene	24	Borneol
10	Octanone-3	25	α -Terpineol
11	<i>p</i> -Cymene	26	Neryl acetate
12	Hexyl acetate	27	Geranyl acetate
13	Hexyl isobutyrate	28	Nerol
14	Octene-1-yl-3 acetate	29	Geraniol
15	Hexyl butyrate		



Sample : oil of lavandin grosso

Column : fused silica capillary, length 50 m, diameter 0,27 mm

Stationary phase : polydimethylsiloxane (OV 101)

Oven temperature : temperature programme 65 to 170 °C at 1,5 °C/min

Injection temperature : 200 °C

Detection temperature : 200 °C

Detector : flame ionization

Carrier gas : H₂

Volume injected : 0,1 µl

Constituents

- | | | | |
|----|---|----|--------------------------------|
| 1 | <i>tert</i> -Methylbutanol | 20 | <i>trans</i> -Epoxy linalol |
| 2 | Phenol | 21 | Linalol |
| 3 | α -Pinene | 22 | Octene-1-yl-3 acetate |
| 4 | Camphene | 23 | Hexyl isobutyrate |
| 5 | Octene-1 ol-3 | 24 | Camphor |
| 6 | Octanone-3 | 25 | Borneol |
| 7 | (Not identified) | 26 | Lavandulol |
| 8 | β -Pinene | 27 | Terpinene-1 ol-4 |
| 9 | Myrcene | 28 | α -Terpineol |
| 10 | Hexyl acetate | 29 | Hexyl butyrate |
| 11 | γ -Methyl- γ -vinyl-butylolactone | 30 | Nerol |
| 12 | α -Terpinene | 31 | Geraniol |
| 13 | <i>p</i> -Cymene | 32 | Linalyl acetate |
| 14 | 1,8-Cineole | 33 | Lavandulyl acetate |
| 15 | Limonene | 34 | Neryl acetate |
| 16 | <i>cis</i> - β -Ocimene | 35 | Geranyl acetate |
| 17 | <i>trans</i> - β -Ocimene | 36 | Coumarine |
| 18 | γ -Terpinene | 37 | β -Caryophyllene |
| 19 | <i>cis</i> -Epoxy linalol | 38 | β -Caryophyllene epoxide |

