
International Standard



3520

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Oil of bergamot, Italy

Huile essentielle de bergamote, Italie

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

International Standard ISO 3520 was developed by Technical Committee ISO/TC 54, *Essential oils*, and was circulated to the member bodies in June 1979.

It has been approved by the member bodies of the following countries :

Australia	Italy
Bulgaria	Philippines
Canada	Portugal
France	South Africa, Rep. of

No member body expressed disapproval of the document.

Oil of bergamot, Italy

1 Scope and field of application

This International Standard specifies certain characteristics of oil of bergamot, Italy, 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 356, *Essential oils — Preparation of test sample.*
- ISO 592, *Essential oils — Determination of optical rotation.*
- ISO 709, *Essential oils — Determination of ester value.*
- ISO 875, *Essential oils — Evaluation of miscibility in ethanol.*
- ISO 1242, *Essential oils — Determination of the acid value.*
- ISO 3794, *Essential oils (containing tertiary alcohols) — Estimation of free alcohols content by determination of ester value after acetylation.*
- ISO 4715, *Essential oils — Quantitative evaluation of residue on evaporation.*
- ISO 4735, *Oil of lemon* — Ultraviolet spectrophotometric analysis.

3 Definition

oil of bergamot, Italy : The oil extracted without heating, by mechanic extraction treatments, from the fresh pericarp of the fruit of *Citrus aurantium* (Linnaeus) subsp. *bergamia* (Wight and Arnott) Engler, picked in Italy.

4 Requirements

4.1 Appearance

Clear, mobile liquid, sometimes with a solid deposit.

4.2 Colour

Green to greenish yellow.

4.3 Odour

Characteristic, pleasant, cool, recalling that of the fresh pericarp of bergamot.

4.4 Relative density at 20/20 °C

Minimum : 0,876

Maximum : 0,884

4.5 Refractive index at 20 °C

Minimum : 1,464 0

Maximum : 1,468 0

4.6 Optical rotation at 20 °C

Range from + 8° to + 30°

Determination of CD value by us:

- 1) At present at the stage of draft. (Revision of ISO/R 279.)
- 2) At present at the stage of draft. (Revision of ISO/R 592.)
- 3) At present at the stage of draft. (Revision of ISO/R 875.)
- 4) At present at the stage of draft.

4.7 Residue on evaporation

Minimum : 4,5 %

Maximum : 6,5 %

4.8 Miscibility with 85 % (V/V) ethanol at 20 °C

The miscibility with 85 % (V/V) ethanol at 20 °C shall be 1 volume in 1 volume of essential oil to give a clear solution.

4.9 Acid value

Maximum : 2

4.10 Ester value

Minimum : 86

Maximum : 129

4.11 Ester value after acetylation

To be completed later.

4.12 Linalol content by chromatography

To be completed later.

4.13 Bergaptene content by chromatography

To be completed later.

4.14 CD value

Minimum : 0,800

Maximum : 1,200

Dilution of 0,1 g/100 ml of 95 % ethanol (V/V)

5 Sampling

See ISO 212 and ISO 356.

Minimum volume of final sample : 50 ml

It is rather common with this oil for solid matter to settle. Special attention is therefore drawn to the need to sample only from well homogenized material. The same applies to the preparation of the test sample.

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 Residue on evaporation

See ISO 4715.

Test portion : 5 g

Evaporation time : 6 h

6.5 Miscibility with 85 % (V/V) ethanol at 20 °C

See ISO 875.

6.6 Acid value

See ISO 1242.

6.7 Ester value

See ISO 709.

6.8 Ester value after acetylation

See ISO 3794.

6.9 Linalol content by chromatography

The determination of the linalol content by chromatography will be the subject of a future International Standard.

6.10 Bergaptene content by chromatography

The determination of the bergaptene content by chromatography will be the subject of a future International Standard.

6.11 CD value

See ISO 4735.

Point B : 278 nm approximately

Maximum value (point D) : 312 nm approximately

Point A : 365 nm approximately

7 Packing, labelling and marking

See ISO/R 210 and ISO/R 211.