
INTERNATIONAL STANDARD



4731

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Oil of geranium

Huile essentielle de géranium

First edition — 1978-12-15

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[ISO 4731:1978](https://standards.iteh.ai/catalog/standards/sist/3f680d14-2831-4cba-95d4-e8fe673e9508/iso-4731-1978)

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UDC 668.526.22

Ref. No. ISO 4731-1978 (E)

Descriptors : essential oils, geranium, materials specification, physical properties, optical properties, chemical properties, sensorial properties.

Price based on 3 pages

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 4731 was developed by Technical Committee ISO/TC 54, *Essential oils*, and was circulated to the member bodies in April 1977.

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

Australia
Austria
Bulgaria
Canada

Egypt, Arab Rep. of
France
India
Italy

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Portugal
South Africa, Rep. of
Turkey
U.S.S.R.

The member body of the following country expressed disapproval of the document on technical grounds :

Netherlands

Oil of geranium

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1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies certain characteristics of oil of geranium, with a view to facilitating the assessment of its quality.

ISO 1279, *Essential oils – Determination of carbonyl compounds content – Hydroxylammonium chloride method*.

ISO 3812, *Essential oils of geranium and rose – Determination of ester value after hot formylation*.

2 REFERENCES

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

ISO/R 211, *Essential oils – Labelling and marking containers*.

ISO 212, *Essential oils – Sampling*.

ISO/R 279, *Determination of the density and relative density of essential oils*.

ISO 280, *Essential oils – Determination of refractive index*.

ISO 592, *Essential oils – Determination of optical rotation*.

ISO/R 709, *Determination of ester value and calculation of ester content of essential oils*.

ISO 875, *Essential oils – Evaluation of miscibility with ethanol*.¹⁾

ISO/R 1241, *Essential oils – Estimation of free alcohols content by determination of ester value after acetylation*.

ISO 1242, *Essential oils – Determination of acid value*.

3 DEFINITION

oil of geranium: The oil obtained by steam distillation of the fresh or slightly withered herbaceous parts of *Pelargonium graveolens* l'Héritier ex Aiton, *Pelargonium roseum* Willdenow and other undefined hybrids which have given rise to differing ecotypes in the various geographical areas.

4 SPECIFICATIONS

4.1 Aspect

Clear, mobile liquid.

4.2 Colour

Various shades of amber yellow to greenish yellow.

4.3 Odour

Characteristic of the origin, rose-like with a varying minty note.

1) At present at the stage of draft. (Revision of ISO/R 875.)

	Bourbon*	Algeria	Morocco	India	Kenya	Egypt	U.S.S.R.	
4.4 Relative density at 20/20 °C								
Minimum . . .	0,884	0,886	0,883	0,890	0,887	0,887	0,884	
Maximum . . .	0,892	0,901	0,900	0,905	0,896	0,892	0,900	
4.5 Refractive index at 20 °C								
Minimum . . .	1,462 0	1,463 0	1,464 0	1,468 0	1,465 0	1,466 0	1,460 5	
Maximum . . .	1,468 0	1,472 0	1,472 0	1,477 0	1,472 0	1,470 0	1,469 0	
4.6 Optical rotation at 20 °C								
Minimum . . .	- 14°	- 13°	- 13°	- 11°	- 14°	- 12°	- 14°	
Maximum . . .	- 8°	- 7°	- 8°	- 7°	- 8°	- 8°	- 7°	
4.7 Miscibility with 70 % (V/V) ethanol at 20 °C								
	The miscibility with 70 % (V/V) ethanol shall be 1 volume in 3 volumes to give a clear solution. Opalescence may sometimes be observed on further addition of solvent.			The miscibility with 70 % (V/V) ethanol shall be 1 volume in 2,2 volumes to give a clear solution. Opalescence may sometimes be observed on further addition of solvent.			The miscibility with 70 % (V/V) ethanol shall be 1 volume in 3 volumes to give a clear solution.	
	<p style="text-align: center;"> https://standards.itech.ai/catalog/standards/sist/3f680d14-2891-4c0a-93d1-e8fe673e9508/iso-4731-1978 ISO 4731:1978 (standards.itech.ai) </p>							
4.8 Acid value								
Maximum . . .	10	10	10	10	5	6	4	
4.9 Ester value								
Minimum . . .	52	31	35	50	50	42	46	
Maximum . . .	78	75	80	76	80	58	80	
4.10 Ester value after acetylation								
Minimum . . .	205	192	192	205	225	210	220	
Maximum . . .	230	230	230	230	240	222	235	
4.11 Carbonyl value								
Maximum . . .	58	58	58	58	58	1)	55	
	corresponding to 16 % of carbonyl compounds expressed as isomenthone							corresponding to 15 % of carbonyl compounds expressed as isomenthone

1) Data not available.

* Including the area of Madagascar and Reunion.

	Bourbon	Algeria	Morocco	India	Kenya	Egypt	U.S.S.R.
4.12 Apparent citronellol (rhodinol) content							
Minimum . . .	42 %	33 %	35 %	40 %	1)	40 %	50 %
Maximum. . .	55 %	47 %	58 %	55 %	1)	58 %	55 %

5 SAMPLING

See ISO 212.

Minimum volume of final sample : 50 ml.

6 METHODS OF TEST

6.1 Relative density at 20/20 °C

See ISO/R 279.

6.2 Refractive index at 20 °C

See ISO 280.

6.3 Optical rotation at 20 °C

See ISO 592.

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

See ISO 875.

6.5 Acid value

See ISO 1242.

6.6 Ester value

See ISO/R 709.

6.7 Ester value after acetylation

See ISO/R 1241.

6.8 Carbonyl value

See ISO 1279.

Relative molecular mass (M_r) = 154,2

Calculate the carbonyl value, expressed in milligrams of KOH per gram of oil, by the formula

$$\frac{C}{100} \times \frac{56,1}{M_r} \times 1\,000 = \frac{561 C}{M_r}$$

where

C is the percentage of carbonyl compounds, expressed as isomenthone;

M_r is the relative molecular mass (154,2).

Express the carbonyl value to the nearest whole number.

6.9 Apparent citronellol (rhodinol) content

See ISO 3812.

7 PACKING, LABELLING AND MARKING

See ISO/R 210 and ISO/R 211.

1) Data not available.

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