

INTERNATIONAL  
STANDARD

**ISO**  
**3516**

Second edition  
1997-07-15

**ANSI Internat Doc Sec**

---

**Oil of coriander fruits**  
**(*Coriandrum sativum* L.)**

*Huile essentielle de fruits de coriandre (Coriandrum sativum L.)*



Reference number  
ISO 3516:1997(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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 3516 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

This second edition cancels and replaces the first edition (ISO 3516:1980), which has been technically revised.

Annexes A and B of this International Standard are for information only.

© ISO 1997

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization  
Case Postale 56 • CH-1211 Genève 20 • Switzerland  
Internet central@iso.ch  
X.400 c=ch; a=400net; p=iso; o=isocs; s=central

Printed in Switzerland

## Oil of coriander fruits (*Coriandrum sativum* L.)

### 1 Scope

This International Standard specifies certain characteristics of the oil of coriander fruits (*Coriandrum sativum* L.), in order to facilitate assessment of its quality.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 210:—<sup>1)</sup>, *Essential oils — General rules for packaging, conditioning and storage.*

ISO 211:—<sup>2)</sup>, *Essential oils — General rules for labelling and marking of containers.*

ISO 212:1973, *Essential oils — Sampling.*

ISO 279:1981, *Essential oils — Determination of relative density at 20 °C (Reference method).*

ISO 280:1976, *Essential oils — Determination of refractive index.*

ISO 592:1981, *Essential oils — Determination of optical rotation.*

ISO 1242:1973, *Essential oils — Determination of the acid value.*

ISO 11024-1:—<sup>3)</sup>, *Essential oils — General guidance on chromatographic profiles — Part 1: Preparation of chromatographic profiles for presentation in standards.*

ISO 11024-2:—<sup>3)</sup>, *Essential oils — General guidance on chromatographic profiles — Part 2: Utilization of chromatographic profiles of a sample of essential oils.*

### 3 Definition

For the purposes of this International Standard, the following definition applies.

1) To be published. (Revision of ISO 210:1961)

2) To be published. (Revision of ISO 211:1961)

3) To be published.

**3.1 oil of coriander fruits:** Essential oil obtained by steam distillation of the fruits of *Coriandrum sativum* L., of the Apiaceae family .

## 4 Requirements

### 4.1 Appearance

Mobile liquid, clear.

### 4.2 Colour

Colourless to pale yellow.

### 4.3 Odour

Characteristic and spicy, recalling that of linalol.

### 4.4 Relative density at 20 °C/20 °C

Minimum: 0,862

Maximum: 0,878

### 4.5 Refractive index at 20 °C

Minimum: 1,462 0

Maximum: 1,470 0

### 4.6 Optical rotation at 20 °C

Range from +7° to +13°.

### 4.7 Acid value

Maximum: 3,0

### 4.8 Chromatographic profile

Analysis of the essential oil shall be carried out by gas chromatography. In the chromatogram obtained, the representative and characteristic components shown in table 1 shall be identified. 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.

### 4.9 Flashpoint

Information on the flashpoint is given in annex B.

**Table 1 — Chromatographic profile**

Component	Minimum %	Maximum %
α-Pinene	3	7
Myrcene	0,5	1,5
Limonene	2	5
γ-Terpinene	2	7
Linalol	65	78
Camphor	4	6
α-Terpineol	0,5	1,5
Geraniol	0,5	3
Geranyl acetate	1	3,5

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

## 5 Sampling

See 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.

## 6 Test methods

### 6.1 Relative density at 20 °C/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 Acid value

See ISO 1272.

### 6.5 Chromatographic profile

See ISO 11024-1 and ISO 11024-2.

## 7 Packaging, labelling, marking and storage

See ISO 210 and ISO 211.

## Annex A

(informative)

### Typical chromatograms of the essential oil of coriander fruits (Russian origin)

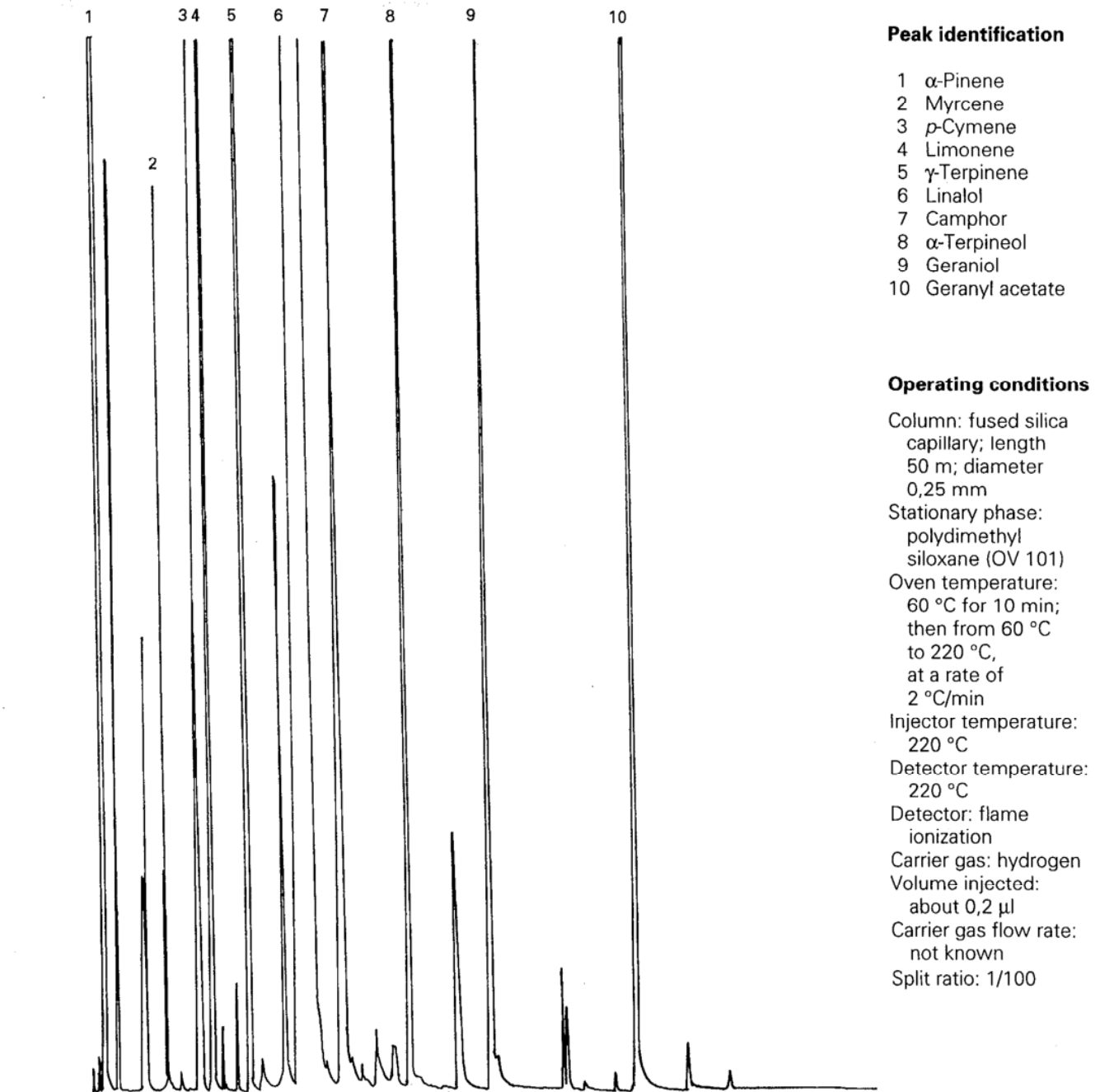
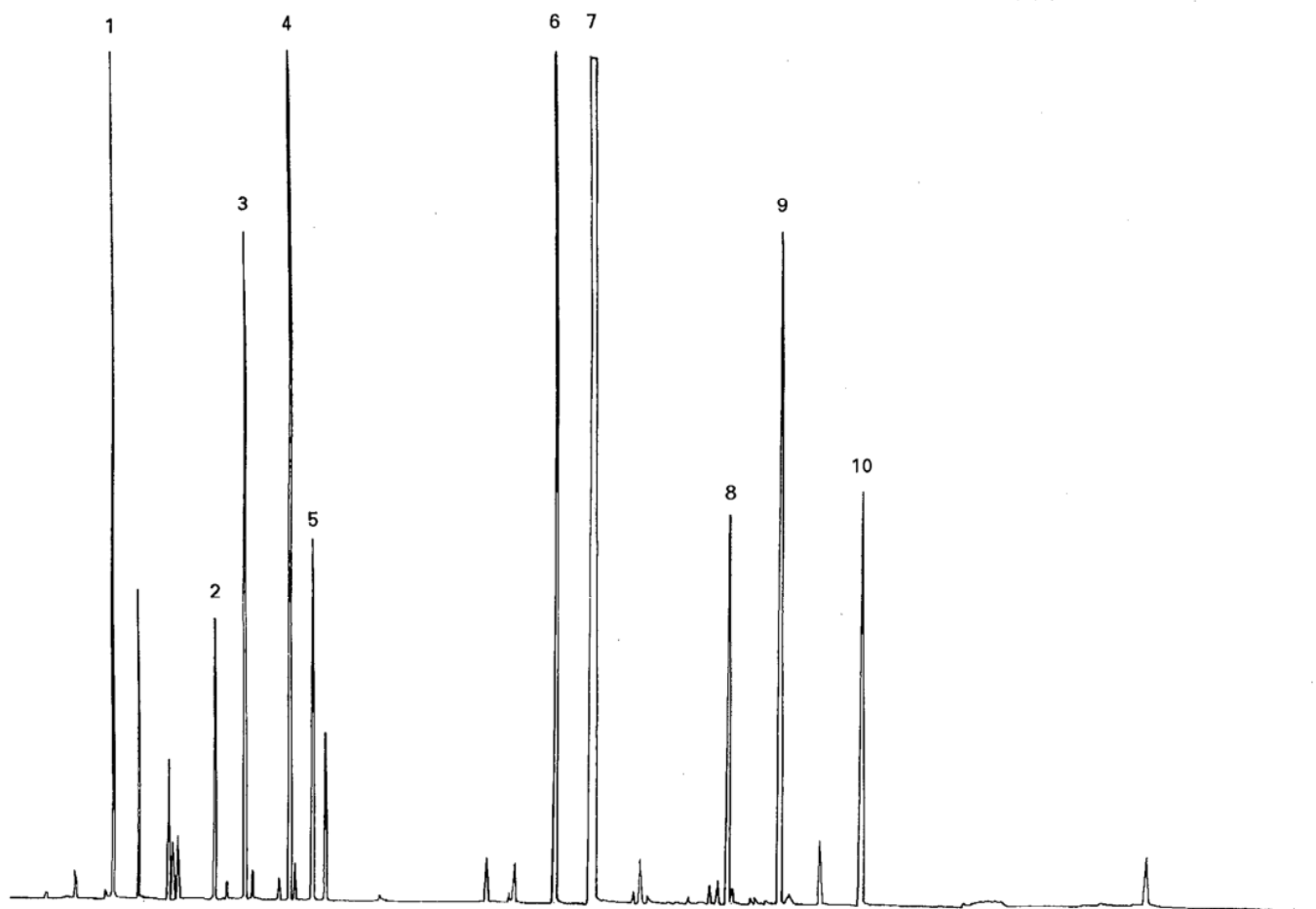


Figure A.1 — Typical chromatogram taken on an apolar column

**Peak identification**

- 1  $\alpha$ -Pinene
- 2 Myrcene
- 3 Limonene
- 4  $\gamma$ -Terpinene
- 5 *p*-Cymene
- 6 Linalol
- 7 Camphor
- 8  $\alpha$ -Terpineol
- 9 Geranyl acetate
- 10 Geraniol

**Operating conditions**

Column: fused silica capillary; length 50 m; diameter 0,25 mm  
Stationary phase: polyethylene glycol 20 000 (CARBOWAX 20M)  
Oven temperature: 55 °C for 10 min; then from 55 °C to 190 °C at a rate of 2 °C/min  
Injector temperature: 220 °C  
Detector temperature: 220 °C  
Detector: flame ionization  
Carrier gas: hydrogen  
Volume injected: about 0,2  $\mu$ l  
Carrier gas flow rate: not known  
Split ratio: 1/100

**Figure A.2 — Typical chromatogram taken on a polar column**

## Annex B (informative)

### Flashpoint

#### B.1 General information

For reasons of safety, transport companies, insurance companies, people in charge of safety services, etc. require information about the flashpoint of essential oils, which in most cases are inflammable products.

A comparative study on the relevant methods of analysis (see ISO/TR 11018<sup>4)</sup>) led to the understanding that it was hard to find a single method for standardization purposes, given that

- essential oils are varied and their chemical compositions differ to a large extent;
- the volume of the sample needed for certain test equipment is incompatible with the high price of essential oils;
- there are different types of equipment that satisfy the desired objective, but users cannot

be obliged to use one type of equipment rather than another.

Consequently, it was decided to give a mean value for the flashpoint in an informative annex in each International Standard, to meet the request of the interested parties.

If possible, the method by which this value was obtained should be specified.

For further information, see ISO/TR 11018<sup>4)</sup>.

#### B.2 Flashpoint of oil of coriander

The mean value is +56 °C.

NOTE — Obtained with "Setaflash" equipment.

4) ISO/TR 11018:1997, *Essential oils — General guidance on the determination of flashpoint*.

---

---

**ICS 71.100.60**

**Descriptors:** fruit and vegetable products, essential oils, coriander, specifications, characteristics, chemical composition, chromatograms, tests, packaging, marking, labelling, storage.

Price based on 5 pages

---

---