
International Standard 4735

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

Oils of *citrus* — Determination of CD value by ultraviolet spectrophotometric analysis

Huiles essentielles de citrus — Détermination de la valeur CD par analyse spectrophotométrique dans l'ultraviolet

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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 4735 was developed by Technical Committee ISO/TC 54, *Essential oils*, and was circulated to the member bodies in November 1979.

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

Australia	France	Philippines
Austria	India	Portugal
Bulgaria	Italy	South Africa, Rep. of
Canada	Korea, Rep. of	USSR
Chile	Netherlands	

No member body expressed disapproval of the document.

Oils of *citrus* — Determination of CD value by ultraviolet spectrophotometric analysis

1 Scope and field of application

This International Standard specifies a method for the determination of the CD value of oils of *citrus* by ultraviolet spectrophotometric analysis.

2 References

ISO 212, *Essential oils — Sampling*.

ISO 356, *Essential oils — Preparation of test sample*.

ISO 648, *Laboratory glassware — One-mark pipettes*.

ISO 1042, *Laboratory glassware — One-mark volumetric flasks*.

3 Definitions

3.1 segment CD : Segment obtained as follows. Through the point D of maximum absorption, draw the parallel to the absorbance axis, and the common tangent to the two parts of the curve (points A and B are obtained) on either side of the maximum; this parallel intersects the common tangent at point C and the wavelength axis at point E. (See the figure.)

3.2 CD value : The measure of segment CD, expressed in absorbance units for the exact mass of test portion specified in the International Standard appropriate to the essential oil concerned.

4 Principle

Plotting the absorbance curve of an ethanolic solution of the oil in the wavelength range from 220 to 440 nm, and determination of the CD value.

NOTE — This method also permits the determination of the ratio CD/DE.

5 Reagent

5.1 Ethanol, 95 % (V/V), for spectrophotometry in the range 220 to 440 nm, having maximum transmittance (at least 60 % at a wavelength of 210 nm).

6 Apparatus

6.1 Spectrophotometer, suitable for use at ultraviolet wavelengths between 220 and 440 nm.

6.2 Quartz cells, of optical path length 1 cm.

6.3 One-mark volumetric flask, of capacity 100 ml, complying with the requirements of ISO 1042.

6.4 One-mark pipettes, of appropriate capacities, complying with the requirements of ISO 648.

7 Sampling

See ISO 212.

8 Procedure

8.1 Preparation of test sample

See ISO 356.

8.2 Test portion

Weigh, to the nearest 1 mg, the mass *m* of the test sample (8.1) specified in the International Standard appropriate to the essential oil concerned.

8.3 Preparation of test solution

Dissolve the test portion (8.2) in the ethanol (5.1), in a 100 ml one-mark volumetric flask (6.3), dilute to the mark and mix.

Take, by means of a pipette (6.4), an aliquot portion of this solution and dilute with the ethanol (5.1) as specified in the International Standard appropriate to the essential oil concerned.

8.4 Determination

Introduce an aliquot portion of the test solution (8.3) into a quartz cell (6.2) of the spectrophotometer (6.1), and record the absorbance curve between 220 and 440 nm, using the ethanol (5.1) as the reference liquid.

NOTE — If a recorder is not available, determine the absorbance at intervals of 5 nm; when approaching the expected minimum and maximum values, determine the absorbance at every 2 nm.

9 Expression of results

The CD value is expressed in absorbance units to three decimal places per gram of product and is given by the formula

$$\text{Segment CD} \times \frac{1}{m}$$

where

segment CD is expressed in absorbance units;

m is the mass, in grams, of the test portion (8.2).

10 Test report

The test report shall state the method used and the result obtained. It shall also mention any operating conditions not specified in this International Standard, or regarded as optional, as well as any circumstances that might have influenced the result.

The test report shall include all details required for the complete identification of the sample.

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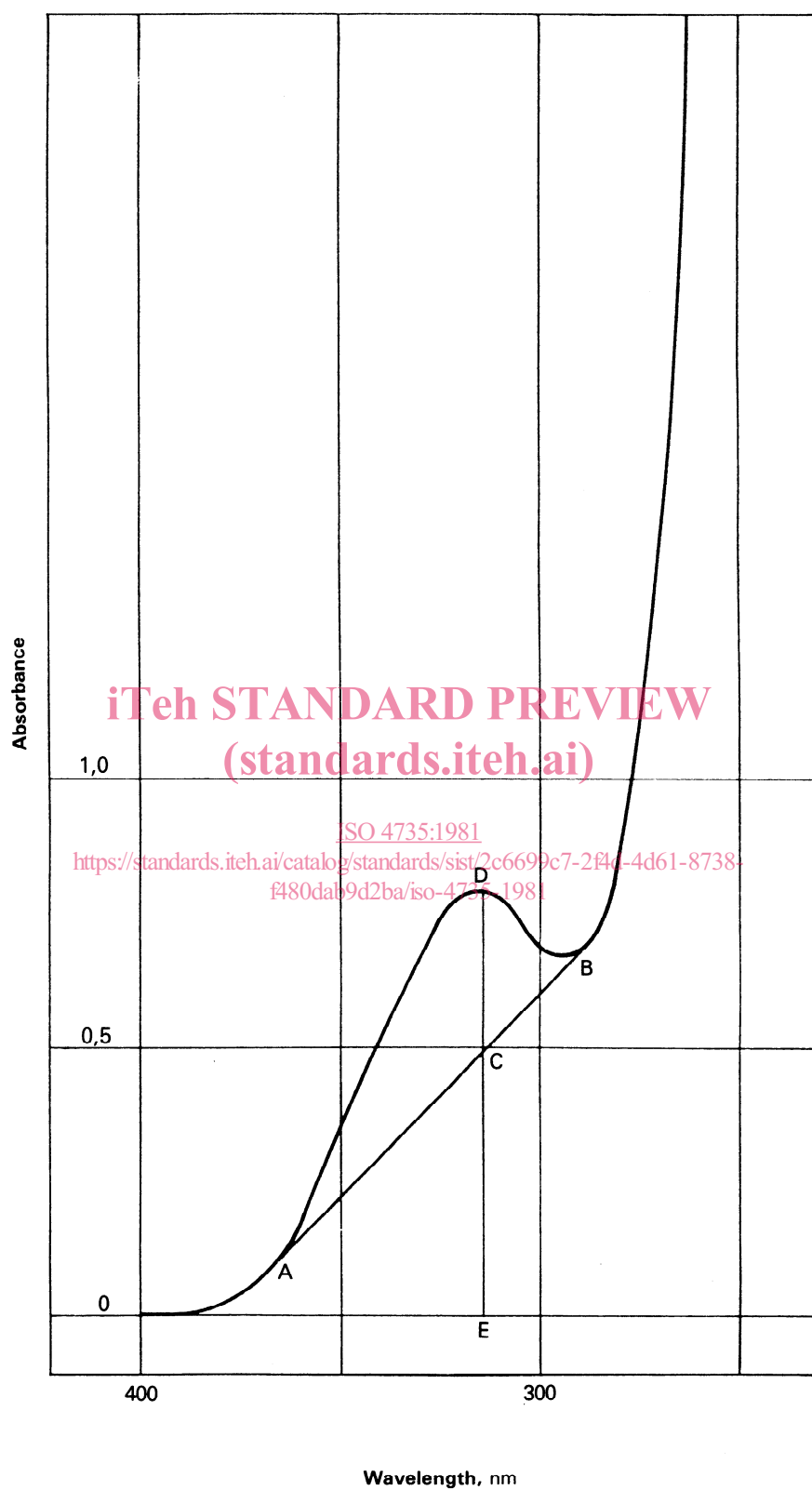


Figure — Typical absorbance curve

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