

INTERNATIONAL STANDARD

ISO
9910

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Oil of sweet orange — Determination of the total carotenoids content

*Huile essentielle d'orange douce — Détermination de la teneur en
caroténoïdes totaux*



Reference number
ISO 9910:1991(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 9910 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

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Oil of sweet orange — Determination of the total carotenoids content

1 Scope

This International Standard specifies a method for the determination of the total carotenoids content of oil of sweet orange.

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 648:1977, *Laboratory glassware — One-mark pipettes*.

ISO 1042:1983, *Laboratory glassware — One-mark volumetric flasks*.

3 Principle

Spectrophotometric measurement of a light petroleum solution of the oil at maximum absorbance, between 400 nm and 500 nm.

4 Reagents

4.1 Solvent, light petroleum, boiling range 40 °C to 60 °C.

5 Apparatus

Ordinary laboratory apparatus, and

5.1 Spectrophotometer, suitable for carrying out measurements between 400 nm and 500 nm.

5.2 Beaker, of capacity 50 ml.

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

5.4 One-mark pipettes, of appropriate capacity, complying with the requirements of ISO 648.

5.5 Analytical balance.

5.6 Cells, of depth 1 cm.

6 Procedure

6.1 Test portion

Weigh, to the nearest 1 mg, about 0,5 g of the test sample, in a 50 ml beaker (5.2).

6.2 Preparation of the test solution

Dissolve the test portion (6.1) in the solvent (4.1), in a 100 ml one-mark volumetric flask (5.3), dilute to the mark with solvent and mix.

6.3 Determination

Measure the absorbance of the solution between 400 nm and 500 nm and record the maximum absorbance of the curve (see figure 1), using light petroleum as a blank.

7 Expression of results

The total carotenoids content w_C , expressed in milligrams per kilogram, is given by the formula

$$w_C = \frac{d \times 0,4}{m} \times 1\,000$$

where

d is the maximum absorbance value of the curve (see 6.3);

m is the mass, in grams, of the test portion (6.1).

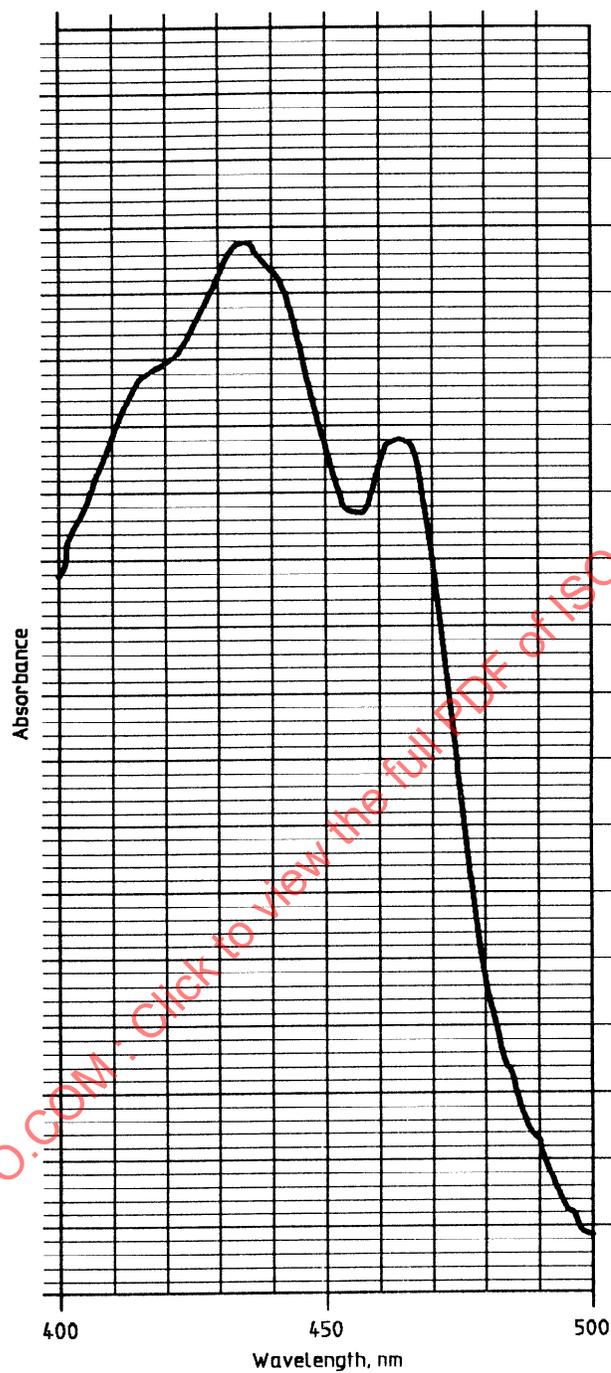
This calculation is based on an average molecular absorption coefficient of $250 \text{ cm}^2/\text{mg}$ for the carotenoids.

8 Test report

The test report shall include the following information:

- a) a reference to this International Standard;
- b) the results obtained, and the form in which they are expressed;
- c) any operation not specified in this International Standard, or any optional operation which may have influenced the results.

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Figure 1 — Typical diagram of absorbance curve

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