INTERNATIONAL STANDARD

ISO 1242

Second edition
1999-10-15

Essential oils — Determination of acid value

Huiles essentielles — Détermination de l'indice d'acide

Reference number
ISO 1242:1999(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 1242 was prepared by Technical Committee ISO/TC 54, *Essential oils*.

This second edition cancels and replaces the first edition (ISO 1242:1973), which has been technically revised.

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Essential oils — Determination of acid value

1 Scope

This International Standard specifies a method of determining the acid value of essential oils. This method is not applicable to essential oils containing appreciable quantities of lactones.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

ISO 385-1, *Laboratory glassware — Burettes — Part 1: General requirements.*

ISO 385-2, *Laboratory glassware — Burettes — Part 2: Burettes for which no waiting time is specified.*

ISO 385-3, *Laboratory glassware — Burettes — Part 3: Burettes for which a waiting time of 30 s is specified.*

3 Term and definition

For the purposes of this International Standard, the following term and definition apply.

3.1
acid value (AV)
number of milligrams of potassium hydroxide required to neutralize the free acids contained in 1 g of the essential oil

4 Principle

The free acids are neutralized with a standardized ethanolic solution of potassium hydroxide.

5 Reagents

Use only reagents of recognized analytical grade and distilled water or water of equivalent purity.

5.1 Ethanol, 95 % (by volume) at 20 °C, freshly neutralized with the potassium hydroxide solution (5.2), in the presence of the coloured indicator (5.3) used for the determination.

5.2 Potassium hydroxide, standard solution in ethanol, c(KOH) = 0,1 mol/l, standardized before each set of tests.

5.3 Coloured indicator

Use either:

a) phenolphthalein, 2 g/l solution in ethanol (5.1), or

b) phenol red, 0,4 g/l solution in ethanol [20 % (by volume)] if the essential oil contains phenolic groups.

NOTE The corresponding monographs will specify which is to be used.

6 Apparatus

Ordinary laboratory apparatus and, in particular, the following.

6.1 Flask, of capacity 100 ml.

NOTE If subsequent determination of the ester value is desired, the saponification device is indicated in ISO 709.

6.2 Measuring cylinder, of capacity 5 ml.

6.3 Burette, of capacity 2 ml, graduated in 0,01 ml intervals, conforming to the requirements for class A given in the relative part of ISO 385.

6.4 Analytical balance, of precision 0,001 g.

7 Sampling

It is important that the laboratory receive a representative sample, not damaged or modified during transport or storage before arrival at the laboratory.

The sampling method is not included in this International Standard. A recommended sampling method is given in ISO 212.

8 Preparation of test sample

Prepare the test sample in accordance with ISO 356.

9 Procedure

9.1 Test portion

Weigh, to the nearest 0,5 mg, approximately 2 g of the test sample.

NOTE If the size of the test portion is to be different from the amount stated above, this will be specified in the standards specific to the essential oil concerned.

9.2 Determination

Introduce the test portion (9.1) into the flask (6.1). Add 5 ml of neutralized ethanol (5.1) and no more than 5 drops of the indicator (5.3), either phenolphthalein solution or phenol red solution depending on the case. Titrate the liquid with the potassium hydroxide solution (5.2) contained in the burette (6.3).

Continue the addition until a change in colour that persists for 30 s, is achieved. Note the volume (V) of potassium hydroxide used.

NOTE If it is required to determine the ester value, reserve the flask and its contents. This content is designated as (A) in ISO 709.

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