INTERNATIONAL STANDARD 1272

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Essential oils — Determination of phenols content

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FOREWORD

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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 1272 was drawn up by Technical Committee ISO/TC 54, *Essential oils,* and circulated to the Member Bodies in August 1967.

It has been approved by the Member Bodies of the following countries :

Australia	Iran	Sweden
Belgium	Israel	Thailand
Brazil	Italy	Turkey
Canada	Japan	United Kingdom
Chile	Netherlands	U.S.S.R.
Czechoslovakia	New Zealand	Yugoslavia
France	Portugal	
India	Romania	

No Member Body expressed disapproval of the document.

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Essential oils — Determination of phenols content

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for determination of the percentage, by volume, of phenols in essential oils.

2 REFERENCES

ISO/R 212, *Essential oils — Sampling.*

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

3 PRINCIPLE

Transformation of the phenolic compounds contained in a known volume of essential oil into their alkaline phenates, followed by measurement of the volume of the unabsorbed portion of the essential oil.

4 REAGENTS

4.1 Tartaric acid, pulverized.

4.2 Potassium hydroxide, free from silica and alumina, 5 % (*m*/*m*) aqueous solution.

4.3 Xylene, free from impurities, soluble in the potassium hydroxide solution (4.2).

5 APPARATUS

Ordinary laboratory apparatus and

5.1 Cassia flask with a graduated neck, 150 ml, with the neck graduated in 0,1 ml, the graduated portion being of 10 ml capacity and at least 15 cm in length. The zero graduation mark shall be a little above the base of the cylindrical portion of the neck. The angle made by the conical wall with the vertical shall be about 30°.

5.2 Pipette, 10 ml.

5.3 Pipette, 2 ml.

5.4 Conical flasks, 100 ml.

6 SAMPLING

Proceed in accordance with the requirements of ISO/R 212.

7 PROCEDURE

7.1 Preparation of test sample

Proceed in accordance with the requirements of ISO/R 356.

However, before drying the oil with magnesium sulphate, shake vigorously a quantity of the oil greater than 10 ml in a conical flask (5.4) with 0,02 g of the tartaric acid (4.1) per millilitre of oil.

7.2 Determination

Measure 10 ml of the oil prepared as specified in 7.1 with the pipette (5.2) into the Cassia flask (5.1) containing approximately 75 ml of potassium hydroxide solution (4.2). Shake the mixture six times at 5 min intervals at ambient temperature.

Raise the unabsorbed portion of the oil into the graduated neck of the Cassia flask by the addition of more of the potassium hydroxide solution. Facilitate the separation of the oil drops attached to the walls by rotating the flask between the hands and gently tapping.

After allowing the flask to stand for a few hours, read off the volume of the unabsorbed oil if all of it is gathered into the neck. If a quantity of emulsion is observed, add 2 ml of xylene (4.3) measured with the pipette (5.3), agitate the emulsified layer by means of a glass capillary tube and allow to stand. If the emulsion has disappeared, read the volume of the unabsorbed oil.

If, however, the emulsion persists, repeat the test with the addition of 2 ml of xylene to the test portion before the initial shaking. In the two latter cases, subtract from the reading 2 ml, corresponding to the volume of xylene added.

In the case of oils for which heating is required for the determination, this fact must be stated in the corresponding International Standards.

8 EXPRESSION OF RESULTS

8.1 Calculation

The phenols content of the essential oil is given, as a percentage by volume (V/V), by the formula :

$$10\,(10 - V)$$

where V is the volume, in millilitres, of the unabsorbed portion of the oil.

8.2 Accuracy of results

Express the results to the nearest whole number.

9 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.