
INTERNATIONAL STANDARD



1271

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Essential oils – Determination of carbonyl compounds content – Free hydroxylamine method

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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 1271 was drawn up by Technical Committee ISO/TC 54, *Essential oils*.

It was approved in January 1969 by the Member Bodies of the following countries :

Belgium	Iran	South Africa, Rep. of
Brazil	Israel	Spain
Canada	Italy	Sweden
Chile	Japan	Thailand
Colombia	Korea, Rep. of	Turkey
Egypt, Arab Rep. of	New Zealand	United Kingdom
France	Poland	U.S.S.R.
Greece	Portugal	Yugoslavia
India	Romania	

The Member Body of the following country expressed disapproval of the document on technical grounds :

Netherlands

Essential oils – Determination of carbonyl compounds content – Free hydroxylamine method

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of carbonyl compounds in some essential oils by oximation.

The method should be applied only if the hydroxylammonium chloride method specified in ISO 1279 is not applicable. On the other hand, it is not possible to use this method for essential oils which contain substantial amounts of esters or other alkali-sensitive constituents. The International Standards referring to the individual essential oils will specify when this method is to be applied.

2 REFERENCES

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

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

ISO 1279, *Essential oils – Determination of carbonyl compounds content – Hydroxylammonium chloride method.* (At present at the stage of Draft.)

3 PRINCIPLE

Conversion of the carbonyl compounds to oximes by reaction with hydroxylamine freed through the action of a solution of potassium hydroxide on the hydroxylammonium chloride; determination of the hydroxylamine remaining after the reaction, by titration with hydrochloric acid.

4 REAGENTS

4.1 Hydrochloric acid, 0.5 N solution.

4.2 Hydroxylammonium chloride ethanolic solution.

Dissolve 50 g of hydroxylammonium chloride in approximately 100 cm³ of water, add about 800 cm³ of 95 % (V/V) ethanol, then 10 cm³ of the ethanolic solution of bromophenol blue (4.4) and dilute to a volume of 1 000 cm³ with 95 % (V/V) ethanol. Bring to pH 3.5 by means of the ethanolic potassium hydroxide solution (4.3) (until green, if the liquid is observed in a thin layer, or until red if the layer is thick.)

A lemon-yellow colour should be obtained by adding 0.05 cm³ of the hydrochloric acid (4.1) to 20 cm³ of the solution, and a red colour by adding 0.05 cm³ of the potassium hydroxide solution (4.3) to another 20 cm³ of the solution.

This solution is stable for a week.

4.3 Potassium hydroxide solution, approximately 0.5 N in 95 % (V/V) ethanol.

4.4 Bromophenol blue, ethanolic solution.

Dissolve, while warming, 0.2 g of bromophenol blue in 3 cm³ of 0.1 N ethanolic potassium hydroxide solution and 10 cm³ of 95 % (V/V) ethanol. After cooling, dilute to a volume of 100 cm³ with ethanol of the same strength.

5 APPARATUS

5.1 Glass flasks, alkali-resistant, capacity 100 to 200 cm³, ground necks, fitted with either a ground glass stopper or a glass tube at least 1 m long and at least 10 mm internal diameter to serve as a reflux condenser.

5.2 Pipettes, capacity 20 cm³.

5.3 Conical flasks, capacity 200 cm³, with ground glass stoppers.

5.4 Burettes, capacity at least 10 cm³, graduated in 0.1 cm³.

6 SAMPLING

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

7 PROCEDURE

7.1 Preparation of the test sample

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