# INTERNATIONAL STANDARD 1279

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

# Essential oils — Determination of carbonyl compounds content — Hydroxylammonium chloride method

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**Descriptors** : essential oils, chemical analysis, determination of content, carbonyl compounds.

## 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 1279 was drawn up by Technical Committee ISO/TC 54, *Essential oils.*

It was approved in January 1968 by the Member Bodies of the following countries :

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

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

Brazil





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# Essential oils — Determination of carbonyl compounds content — Hydroxylammonium chloride method

## 1 SCOPE AND FIELD OF APPLICATION

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

The International Standards referring to the individual essential oils will specify whether this method or the free hydroxylamine method specified in ISO 1271 is to be applied.

## 2 REFERENCES

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

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

ISO 1271, *Essential oils — Determination of carbonyl compounds content — Free hydroxylamine method.*

## 3 PRINCIPLE

The carbonyl compounds to be determined are converted into oximes by reaction with hydroxylammonium chloride.

The hydrochloric acid liberated during the reaction is determined by an ethanolic potassium hydroxide solution.

## 4 REAGENTS

**4.1 Hydroxylammonium chloride** ethanolic solution.

Dissolve 50 g of hydroxylammonium chloride in about 100 ml of water, add about 800 ml of ethanol 95 % (*V/V*). Add 10 ml of ethanolic bromophenol blue solution (4.2) and make up to 1 000 ml with ethanol 95 % (*V/V*). 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).

This solution is stable for 1 week.

**4.2 Bromophenol blue**, ethanolic solution.

Dissolve, while warming, 0,2 g of bromophenol blue in 3 ml of ethanolic potassium hydroxide solution 0,1 N and 10 ml of ethanol 95 % (*V/V*). After cooling to ambient temperature make up to 100 ml with the same strength ethanol.

**4.3 Potassium hydroxide**, approximately 0,5 N solution in 95 % (*V/V*) ethanol, standardized immediately before use against 0,5 N hydrochloric acid, using bromophenol blue (4.2) as indicator and running the alkali into the acid.

## 5 APPARATUS

**5.1 Conical flask**, 200 ml, with ground glass stopper.

**5.2 Graduated cylinder**, 25 ml.

**5.3 Burette**, of at least 25 ml, graduated in 0,1 ml.

## 6 SAMPLING

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

## 7 PROCEDURE

### 7.1 Preparation of the test sample

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

### 7.2 Determination

Weigh, to the nearest 1 mg, into the conical flask (5.1) the amount of essential oil specified in the appropriate International Standard. Add from the graduated cylinder (5.2) 25 ml of hydroxylammonium chloride solution (4.1) and set aside for the time specified in the appropriate International Standard.

If additional heating is necessary this will be indicated in the appropriate International Standard.

After the time prescribed, and if necessary after cooling to ambient temperature, titrate the contents of the flask with the ethanolic potassium hydroxide solution (4.3), taking care to avoid going beyond the greenish-yellow colour of the indicator; continue the titration with the potassium hydroxide solution until a bluish-green colour persisting for 5 min is obtained.