

# INTERNATIONAL STANDARD



280

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

## Essential oils – Determination of refractive index

*Huiles essentielles – Détermination de l'indice de réfraction*

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**Descriptors** : essential oils, tests, optical tests, determination, refractivity.

## 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 280 was drawn up by Technical Committee ISO/TC 54, *Essential oils*. It was submitted directly to the ISO Council, in accordance with clause 6.12.1 of the Directives for the technical work of ISO.

This International Standard cancels and replaces ISO Recommendation R 280-1962, which had been approved by the Member Bodies of the following countries :

Australia	Greece	Portugal
Austria	Israel	Romania
Belgium	Italy	Spain
Canada	Japan	Sweden
Chile	Mexico	United Kingdom
Czechoslovakia	Netherlands	U.S.S.R.
France	New Zealand	Yugoslavia

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

India

# Essential oils – Determination of refractive index

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of the refractive index of essential oils.

## 2 REFERENCES

ISO 212, *Essential oils – Sampling*.

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

## 3 DEFINITION

**refractive index of an essential oil** : The ratio of the sine of the angle of incidence to the sine of the angle of refraction, when a ray of light of defined wavelength passes from air into the essential oil kept at a constant temperature.

The wavelength is  $589,3 \pm 0,3$  nm corresponding with the  $D_1$  and  $D_2$  lines of the sodium spectrum.

The reference temperature is  $20^{\circ}\text{C}$ , except for those oils which are not liquid at this temperature, in which case a temperature of  $25^{\circ}\text{C}$  or  $30^{\circ}\text{C}$ , depending on the melting point of these essential oils, shall be used.

## 4 PRINCIPLE

According to the type of instrument used, either direct measurement of the angle of refraction or observation of the limit of total reflection, the oil being maintained under conditions of isotropism and transparency.

## 5 APPARATUS

### 5.1 Refractometer

A recognized type of refractometer shall be used, allowing direct readings of refractive indices between 1,300 0 and 1,700 0 to be made with an accuracy of  $\pm 0,000\,2$ .

Adjust the apparatus so as to give at  $20^{\circ}\text{C}$  the following refractive indices :

1,333 0 for distilled water,  
1,490 6 for *p*-cymene,  
1,568 5 for benzyl benzoate,  
1,658 5 for 1-bromonaphthalene.

The products used for standards must be of refractometric grade.

Some instruments may also be adjusted by means of a plate of glass of known refractive index, according to the directions supplied by the manufacturer of the instrument.

### 5.2 Apparatus for temperature maintenance

Any apparatus may be used (for example a thermostat) which ensures a circulation of water through the refractometer, thus keeping the instrument at the necessary temperature to within  $\pm 0,2^{\circ}\text{C}$ .

### 5.3 Light source

The determinations are made using sodium light. Diffused daylight or light from an electric lamp may be used for refractometers fitted with an achromatic compensator.