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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION
R 279

DETERMINATION OF THE DENSITY AND RELATIVE DENSITY OF ESSENTIAL OILS

1st EDITION
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BRIEF HISTORY

The ISO Recommendation R 279, *Determination of the Density and Relative Density of Essential Oils,* was drawn up by Technical Committee ISO/TC 54, *Essential Oils,* the Secretariat of which is held by the Repartição de Normalização (IGPAI).

Work on this question by the Technical Committee began in 1953 and led, in 1957, to the adoption of a Draft ISO Recommendation.

This first Draft ISO Recommendation (No. 87) was circulated to all the ISO Member Bodies for enquiry. As the results of this consultation were not considered satisfactory, the Technical Committee presented a second Draft ISO Recommendation, which was circulated to all the Member Bodies in April 1960 and was approved by the following Member Bodies:

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

Two Member Bodies opposed the approval of the Draft:

Canada India.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in November 1962, to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 279 November 1962

DETERMINATION OF THE DENSITY AND RELATIVE DENSITY OF ESSENTIAL OILS

1. SCOPE

This ISO Recommendation specifies the reference method to be used in determining the density and relative density of essential oils, liquid at the temperature of 20 °C.

2. DEFINITIONS

2.1 *Density (mass density) at* 20 °C of an essential oil means the ratio of the mass of a given volume of the oil at 20 °C to this volume.

This quantity is expressed in grammes per millilitre and its symbol is ρ_{20}.

2.2 *Relative density* at* 20 °C *or at* 4 °C of an essential oil means the ratio of the density of the oil at 20 °C to that of distilled water at 20 °C or at 4 °C.

This quantity is dimensionless and its symbol is d_{20}^{20} or d_{4}^{20}.

All weighings are made in air.

3. PRINCIPLE OF THE METHOD

Since this ISO Recommendation requires values accurate to three decimal places, a pycnometer is used for weighing equal volumes of the liquids in question, in order to obviate the use of large volumes of liquid.

4. APPARATUS

4.1 *Analytical balance*, sensitive to 0.5 mg.

4.2 *Water bath* maintained at 20 ± 0.2 °C.

4.3 *Funnels and syphons* for pycnometers.

4.4 *Pycnometer* of 50 ml, 25 ml or 10 ml capacity, according to the volume of essential oil available.

4.5 *Standardized thermometer* divided in fifths or tenths of a degree Celsius, for determinations of temperatures between 10 and 30 °C.

5. SAMPLING

See ISO Recommendation R 212, *Essential Oils — Sampling*.

* As the reference substance is water, the name "specific gravity" is often used in English.