



# SLOVENSKI STANDARD

## SIST ISO 6883:2011

01-junij-2011

Nadomešča:  
SIST ISO 6883:2001

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**Živalske in rastlinske maščobe in olja - Določanje dogovorjene mase na enoto prostornine (masa litra v zraku)**

Animal and vegetable fats and oils -- Determination of conventional mass per volume (litre weight in air)

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Corps gras d'origines animale et végétale -- Détermination de la masse volumique conventionnelle (poids du litre dans l'air) [ISO 6883:2011](https://standards.iteh.ai/catalog/standards/sist/e8aefb6d-8ad7-40d3-a976-dd8a856826e4/sist-iso-6883-2011)

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**ICS:**

67.200.10	Rastlinske in živalske maščobe in olja	Animal and vegetable fats and oils
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# INTERNATIONAL STANDARD

**ISO  
6883**

Fourth edition  
2007-05-01

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## **Animal and vegetable fats and oils — Determination of conventional mass per volume (litre weight in air)**

*Corps gras d'origines animale et végétale — Détermination de la masse  
volumique conventionnelle (poids du litre dans l'air)*

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Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
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Web [www.iso.org](http://www.iso.org)

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**ISO 6883:2007(E)****Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6883 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 11, *Animal and vegetable fats and oils*.

This fourth edition cancels and replaces the third edition (ISO 6883:2000), which has been technically revised.

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# Animal and vegetable fats and oils — Determination of conventional mass per volume (litre weight in air)

## 1 Scope

This International Standard specifies a method for the determination of the conventional mass per volume (“litre weight in air”) of animal and vegetable fats and oils (hereinafter referred to as fats) in order to convert volume to mass or mass to volume.

The procedure is applicable only to fats in a liquid state.

The temperature of determination applied for any fat should be such that the fat does not deposit crystals at that temperature.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 661, *Animal and vegetable fats and oils — Preparation of test sample*

ISO 3507, *Laboratory glassware — Pyknometers*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **conventional mass per volume**

#### **litre weight in air**

quotient of the mass in air of fat to its volume at a given temperature

NOTE It is expressed in kilograms per litre (numerically equal to grams per millilitre).

## 4 Principle

The mass of a volume of liquid fat in a calibrated pyknometer is measured at a specified temperature.

## 5 Apparatus

Usual laboratory apparatus and, in particular, the following.

**5.1 Water bath**, capable of being maintained to within 0,1 °C of the temperatures chosen for the calibration and determination.

## ISO 6883:2007(E)

It should be fitted with a calibrated thermometer, graduated in divisions of 0,1 °C covering the relevant temperature range.

### 5.2 Pyknometer (Jaulmes), of capacity 50 ml, with side-arm.

It should be fitted by means of conical joints with a calibrated thermometer graduated in divisions of 0,1 °C and with a cap perforated at the top for the side-arm (see Figure 1).

The pyknometer should preferably be made of borosilicate glass, but if this is not available then one made of soda glass may be used.

NOTE The cap is only essential if the determination is carried out at a temperature below ambient.

Alternatively, the Type 3 (Gay-Lussac) pyknometer (see Figure 2) specified in ISO 3507 may be used; however, the use of a pyknometer with thermometer is preferred.

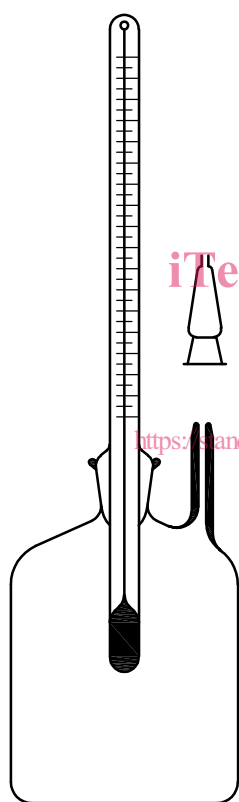


Figure 1 — Jaulmes pyknometer



Figure 2 — Gay-Lussac pyknometer

## 6 Sampling

A representative sample should have been sent to the laboratory. It should not have been damaged or changed during transport or storage.

Sampling is not part of the method specified in this International Standard. A recommended sampling method is given in ISO 5555.



## 7 Preparation of test sample

Prepare the test sample in accordance with ISO 661, but do not filter or dry it.

Take care not to include air bubbles in the fat.

## 8 Procedure

### 8.1 Calibration of pycnometer

**8.1.1** Calibrate the pycnometer (5.2) at least once a year, and at least in duplicate, by the procedure described in 8.1.2. Calibrate a pycnometer made of soda glass at least once every 3 months, at least in duplicate.

NOTE The calibration procedure described is used to determine the volume of the pycnometer when filled with water at the temperature  $\theta_c$ .

**8.1.2** Calibrate the pycnometer at the following temperatures:

- a) at 40 °C if the mean coefficient of cubic expansion ( $\gamma$ ) of the pycnometer glass is known;
- b) at 20 °C and 60 °C if  $\gamma$  is not known.

**8.1.3** Clean and thoroughly dry the pycnometer. Weigh, to the nearest 0,1 mg, the empty pycnometer with the thermometer and cap or with the stopper ( $m_1$ ).

Bring recently distilled water or water of equivalent purity, free from air, to a temperature approximately 5 °C below the temperature of the water bath. Remove the thermometer and cap (or the stopper) and fill the pycnometer with the prepared water. Replace the thermometer or stopper. Take care not to include air bubbles during these operations. Place the filled pycnometer in the water bath, so that it is immersed up to the middle of its conical socket, until the contents have reached a stable temperature (which takes about 1 h). Allow the water to overflow from the side arm or stopper outlet. Record the temperature,  $\theta_c$ , of the pycnometer contents to the nearest 0,1 °C. Carefully remove any water that has overflowed from the top and side of the side-arm or stopper. Place the cap on the side-arm. Remove the pycnometer from the water bath, wiping it thoroughly with fluff-free material until dry. Allow its temperature to reach ambient.

Weigh the full pycnometer with the thermometer and cap, or with the stopper, to the nearest 0,1 mg ( $m_2$ ).

If the value of  $\gamma$  for the pycnometer glass is not known, adjust the water bath to the desired second calibration temperature and repeat the calibration procedure.

### 8.2 Determination

#### 8.2.1 General

For a temperature of determination below ambient temperature, use a Jaulmes pycnometer.

Clean and thoroughly dry the pycnometer. Weigh, to the nearest 0,1 mg, the empty pycnometer with the thermometer and cap or with the stopper.

Adjust the water bath (5.1) to a temperature that does not vary by more than 1 °C from the temperature required for the determination, i.e. the temperature at the time of measurement of the fat in the bulk tank.

Bring the prepared test sample (Clause 7) to a temperature of 3 °C to 5 °C below the temperature of the water bath. Mix carefully.