

## **Liquefied petroleum gases - Calculation method for density and vapour pressure**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 8973:2001 sisaldab Euroopa standardi EN ISO 8973:1999 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.06.2001 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 8973:2001 consists of the English text of the European standard EN ISO 8973:1999.</p> <p>This document is endorsed on 18.06.2001 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This standard describes a simplified method for the calculation of density and vapour pressure of liquefied petroleum gases (LPG) based on compositional data and density and vapour pressure factors for individual LPG components. A list of factors is provided in this International Standard. This method is intended for application in specifications of product quality and is not intended for application to quantity measurement in custody transfer (see ISO 6578).</p>	<p><b>Scope:</b></p> <p>This standard describes a simplified method for the calculation of density and vapour pressure of liquefied petroleum gases (LPG) based on compositional data and density and vapour pressure factors for individual LPG components. A list of factors is provided in this International Standard. This method is intended for application in specifications of product quality and is not intended for application to quantity measurement in custody transfer (see ISO 6578).</p>
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**ICS** 75.160.30

**Võtmesõnad:** density (mass/volume), determination, liquefied petroleum gases, petroleum products, rules of calculation, tests, vapour pressure

ICS 75.160.30

English version

Liquefied petroleum gases

Calculation method for density and vapour pressure  
(ISO 8973 : 1997)

Gaz de pétrole liquéfiés – Méthode de  
calcul de la masse volumique et de la  
pression de vapeur (ISO 8973 : 1997)

Flüssiggase – Berechnungsverfahren  
für die Dichte und den Dampfdruck  
(ISO 8973 : 1997)

This European Standard was approved by CEN on 1999-02-18.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

**Central Secretariat: rue de Stassart 36, B-1050 Brussels**

## Foreword

International Standard

ISO 8973 : 1997 Liquefied petroleum gases – Calculation method for density and vapour pressure, which was prepared by ISO/TC 28 'Petroleum products and lubricants' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 19 'Petroleum products, lubricants and related products', the Secretariat of which is held by NNI, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by September 1999 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

## Endorsement notice

The text of the International Standard ISO 8973 : 1997 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to international publications are listed in Annex ZA (normative).

## 1 Scope

This International Standard describes a simplified method for the calculation of density and vapour pressure of liquefied petroleum gases (LPG) based on compositional data and density and vapour pressure factors for individual LPG components. A list of factors is provided in this International Standard. This method is intended for application in specifications of product quality and is not intended for application to quantity measurement in custody transfer (see ISO 6578).

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6578:1991, *Refrigerated hydrocarbon liquids — Static measurement — Calculation procedure*.

ISO 7941:1988, *Commercial propane and butane — Analysis by gas chromatography*.

## 3 Definitions

For the purpose of this International Standard the following definitions apply.

**3.1 liquefied petroleum gas (LPG):** Hydrocarbon gas that can be stored and/or handled in the liquid phase under moderate conditions of pressure and at ambient temperature. It consists essentially of C<sub>3</sub> and C<sub>4</sub> alkanes or alkenes, or a mixture of these, contains generally less than 5 % by liquid volume of material of higher carbon number, and has a gauge vapour pressure not exceeding approximately 1 600 kPa at 40 °C.

**3.2 density factor:** Density, expressed in kilograms per cubic metre, of a component in the liquid phase under its own vapour pressure at a temperature of 15 °C.

**3.3 vapour pressure:** Vapour pressure, expressed in kilopascals on an absolute basis, i.e. the gauge pressure plus local ambient pressure.

**3.4 vapour pressure factor:** Absolute vapour pressure, expressed in kilopascals, of a component of the liquid at temperature of 37,8 °C, 40 °C, 50 °C or 70 °C.