Natural gas - Standard reference conditions

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EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN ISO 13443:2005 sisaldab Euroopa standardi EN ISO 13443:2005 ingliskeelset teksti. Käesolev dokument on jõustatud 22.06.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 13443:2005 consists of the English text of the European standard EN ISO 13443:2005. This document is endorsed on 22.06.2005 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This International Standard specifies the standard reference conditions of temperature, pressure and humidity to be used for measurements and calculations carried out on natural gases, natural-gas substitutes and similar fluids.	**Scope:** This International Standard specifies the standard reference conditions of temperature, pressure and humidity to be used for measurements and calculations carried out on natural gases, natural-gas substitutes and similar fluids.

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Natural gas - Standard reference conditions (ISO 13443:1996 including Corrigendum 1:1997)

Gaz naturel - Conditions de référence standard (ISO 13443:1996, Corrigendum 1:1997 inclus)

This European Standard was approved by CEN on 17 April 2005.

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.

This European Standard exists 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

The text of ISO 13443:1996 has been prepared by Technical Committee ISO/TC 193 "Natural gas" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 13443:2005 by CMC.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2005, and conflicting national standards shall be withdrawn at the latest by November 2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 13443:1996 has been approved by CEN as EN ISO 13443:2005 without any modifications.

INTERNATIONAL STANDARD

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Natural gas — Standard reference conditions

Gaz naturel — Conditions de référence standard

Reference number
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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.

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.

International Standard ISO 13443 was prepared by Technical Committee ISO/TC 193, *Natural gas*.

Annexes A and C form an integral part of this International Standard. Annexes B, D, E and F are for information only.

Introduction

The multiplicity of so-called "standard reference conditions" of temperature, pressure and humidity (state of saturation) used in the measurement of natural-gas quality and quantity can cause much confusion. Failure to take unrecognized differences of reference conditions into account can have serious consequences in, for example, custody transfer applications. Often enough, even an experienced gas engineer may not recognize the potential for error, as the units of measurement usually employ identical terminology, irrespective of differences in the reference conditions. All of the ambiguity and its undesirable consequences may easily be removed by the adoption of a single standardized set of reference conditions. The set chosen in this International Standard will be known as the ISO standard reference conditions.

Natural gas — Standard reference conditions

1 Scope

This International Standard specifies the standard reference conditions of temperature, pressure and humidity to be used for measurements and calculations carried out on natural gases, natural-gas substitutes and similar fluids.

The primary application is expected to be in international custody transfer, where the reduction to a common basis of those physical attributes of a gas which describe both its quality and quantity will simplify the practice of world trade and commerce.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was 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 edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6976:1995, *Natural gas — Calculation of calorific values, density, relative density and Wobbe index from composition.*

3 Standard reference conditions

The standard reference (or base) conditions of temperature, pressure and humidity (state of saturation) to be used for measurements and calculations carried out on natural gases, natural-gas substitutes and similar fluids in the gaseous state are 288,15 K and 101,325 kPa for the real dry gas.

The physical properties to which these ISO standard reference conditions apply include volume, density, relative density, compression factor, superior calorific value, inferior calorific value and Wobbe index. Full definitions of these quantities are given in ISO 6976:1995. In the cases of calorific value and Wobbe index, both the volume of gas burned and the energy released by combustion shall relate to the ISO standard reference conditions.

It is recognized, however, that in certain circumstances it may be impracticable or even unallowable to use the ISO standard reference conditions. For example, national legislation or contractual obligations may demand the use of alternative reference conditions. For this reason, annex A provides factors for conversion between several sets of metric reference conditions which are known to be in regular use, and annex B gives equations which enable values of properties (relating to any other known reference conditions) to be converted to values for the ISO