

**Natural gas - Determination of water content
at high pressure**

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pressure

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 11541:2003 sisaldab Euroopa standardi EN ISO 11541:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 19.03.2003 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 11541:2003 consists of the English text of the European standard EN ISO 11541:2002.</p> <p>This document is endorsed on 19.03.2003 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>Käsitlusala:</p> <p>Water vapour may be present in natural gas due to, for example, natural occurrence in the well production stream, the storage of gas in underground reservoirs, transmission or distribution through mains containing moisture or other reasons</p>	<p>Scope:</p> <p>Water vapour may be present in natural gas due to, for example, natural occurrence in the well production stream, the storage of gas in underground reservoirs, transmission or distribution through mains containing moisture or other reasons</p>
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ICS 75.060

Võtmesõnad: absorption, chemical analysis and testing, chemical analysis and testing, determination of content, gas analysis, natural gas, pressure, sampling, sampling methods, steam, water, water content

ICS 75.060

English version

Natural gas

**Determination of water content at high pressure
(ISO 11541 : 1997)**

Gaz naturel – Dosage de l'eau à
haute pression (ISO 11541 : 1997)

Erdgas – Bestimmung des Wasserge-
haltes unter hohem Druck
(ISO 11541 : 1997)

This European Standard was approved by CEN on 2002-10-09.

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 Management Centre 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 Management Centre 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, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

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

Management Centre: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

ISO 11541 : 1997 Natural gas – Determination of water content at high pressure, which was prepared by ISO/TC 193 'Natural gas' of the International Organization for Standardization, has been adopted by CEN/CMC 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 May 2003 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, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 11541 : 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

Water vapour may be present in natural gas due to, for example, natural occurrence in the well production stream, the storage of gas in underground reservoirs, transmission or distribution through mains containing moisture or other reasons.

This International Standard specifies a method of determining the water content of natural gas under pressures of more than 1 MPa, the upper pressure limit being determined by the maximum pressure that the apparatus can withstand. It is applicable to sweet natural gas and sour natural gas, containing hydrogen sulfide, with a water concentration of 10 mg/m³ or more.¹⁾

NOTE — Test data may be affected by alcohols, mercaptans, hydrogen sulfide and glycol contained in the sample gas, as these compounds react with the phosphorus pentoxide (P₂O₅) used to absorb the water vapour in the gas.

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 10715:—²⁾, *Natural gas — Sampling guidelines*.

3 Principle

A measured volume of gas is passed through an absorption tube filled with phosphorus pentoxide. Water contained in the gas is absorbed by the phosphorus pentoxide and phosphoric acid is formed. The increase in the mass of the tube is deemed to be the mass of water present in the gas. The absorption of water vapour at pipeline pressure is favoured over absorption at ambient pressure for the following reasons:

- a) the water vapour partial pressure is high;
- b) the necessary amount of gas is transmitted in a shorter time.

1 In this International Standard, all volumes are expressed at 288,15 K and 101,325 kPa.

2) To be published.