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

Gaz naturel — Dosage de l'eau à haute pression



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 11541 was prepared by Technical Committee ISO/TC 193, *Natural gas*, Subcommittee SC 1, *Analysis of natural gas*.

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Natural gas — Determination of water content at high pressure

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.