

INTERNATIONAL STANDARD

ISO
10101-1

First edition
1993-10-01

Corrected and reprinted
1995-12-15

Natural gas — Determination of water by the Karl Fischer method —

Part 1: Introduction

*Gaz naturel — Dosage de l'eau par la méthode de Karl Fischer —
Partie 1: Introduction*



Reference number
ISO 10101-1:1993(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.

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 10101-1 was prepared by Technical Committee ISO/TC 193, *Natural gas*, Sub-Committee SC 1, *Analysis of natural gas*.

ISO 10101 consists of the following parts, under the general title *Natural gas* — *Determination of water by the Karl Fischer method*:

- Part 1: *Introduction*
- Part 2: *Titration procedure*
- Part 3: *Coulometric procedure*

Annex A of this part of ISO 10101 is for information only.

© ISO 1993

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland
Printed in Switzerland

Natural gas — Determination of water by the Karl Fischer method —

Part 1: Introduction

WARNING — Local safety regulations must be taken into account, when the equipment is located in hazardous areas. Due to the toxicity and odour of pyridine, the user should ensure that there is adequate ventilation.

1 Scope

This part of ISO 10101 specifies general requirements for the determination of water in natural gas using the Karl Fischer method. ISO 10101-2 and ISO 10101-3 specify two individual methods of determination, a titration procedure and a coulometric procedure, respectively.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 10101. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10101 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 6712:1982, *Gas analysis — Sampling and transfer equipment for gases supplying an analytical unit.*

ISO 10101-2:1993, *Natural gas — Determination of water by the Karl Fischer method — Part 2: Titration procedure.*

ISO 10101-3:1993, *Natural gas — Determination of water by the Karl Fischer method — Part 3: Coulometric procedure.*

3 Principle

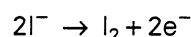
Reaction of water present in the test sample with iodine and sulfur-dioxide in a pyridine/methanol mixture (Karl Fischer reagent).

3.1 Principle of the first method (ISO 10101-2)

A measured volume of gas is passed through a cell containing a relatively small volume of absorbent solution. Water in the gas is dissolved in the absorbent solution and subsequently titrated with Karl Fischer reagent, the endpoint being detected voltametrically.

3.2 Principle of the second method (ISO 10101-3)

A measured volume of gas is passed through a cell containing anhydrous, previously titrated, anodic solution. The iodine required for the titration of the dissolved water is coulometrically produced from the iodide present in the solution by the reaction



4 Reactions and interferences

