

Natural gas — Determination of mercury —

Part 1: Sampling of mercury by chemisorption on iodine

The European Standard EN ISO 6978-1:2005 has the status of a
British Standard

ICS 75.060

National foreword

This British Standard is the official English language version of EN ISO 6978-1:2005. It is identical with ISO 6978-1:2003. Together with BS ISO 6978-2 and -3, it supersedes BS 7678:1993 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PTI/15, Natural gas and gas analysis, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii to v, a blank page, pages 1 to 16, an inside back cover and a back cover.

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Natural gas — Determination of mercury — Part 1: Sampling of mercury by chemisorption on iodine (ISO 6978-1:2003)

Gaz naturel — Détermination de la teneur en mercure —
Partie 1: Échantillonnage de mercure par chimisorption sur
iode (ISO 6978-1:2003)

Erdgas — Bestimmung von Quecksilber — Teil 1:
Probenahme von Quecksilber durch Chemisorption an Iod
(ISO 6978-1:2003)

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

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

Foreword

The text of ISO 6978-1:2003 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 6978-1:2005 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of an identical text or by endorsement, at the latest by November 2005, and conflicting national standards shall be withdrawn at the latest by November 2005.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 6978-1:2003 has been approved by CEN as EN ISO 6978-1:2005 without any modifications.

INTERNATIONAL STANDARD

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Natural gas — Determination of mercury —

Part 1: Sampling of mercury by chemisorption on iodine

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Partie 1: Échantillonnage de mercure par chimisorption sur iode



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6978-1 was prepared by Technical Committee ISO/TC 193, *Natural gas*, Subcommittee SC 1, *Analysis of natural gas*.

This first edition of ISO 6978-1, together with ISO 6978-2, cancels and replaces ISO 6978:1992, which has been technically revised.

ISO 6978 consists of the following parts, under the general title *Natural gas — Determination of mercury*:

- *Part 1: Sampling of mercury by chemisorption on iodine*
- *Part 2: Sampling of mercury by amalgamation on gold/platinum alloy*

Introduction

Natural gases may contain considerable amounts of mercury, which are generally present in the elemental form. Gases with high mercury content have to be purified to avoid the condensation of mercury during processing and transport as well as to be compliant with the demands of gas sales contracts. Low mercury concentrations are specified when natural gas is to be liquefied. This is to avoid severe corrosion problems, for instance in aluminium heat exchangers of liquefaction plants.

Since the presence of hydrocarbons, in particular aromatic hydrocarbons present in low concentrations in almost every natural gas, interferes in the determination of mercury by atomic absorption spectrometry (AAS) or atomic fluorescence spectrometry (AFS), mercury cannot be determined directly in natural gas. Therefore, prior to the analytical determination, mercury has to be collected and separated from aromatic hydrocarbons.

The purpose of the determination of the mercury content can be

- to monitor gas quality,
- to monitor the operation of gas treatment plants for mercury removal.

Several methods for the collection or enrichment of mercury from natural gas have been developed. The collection of mercury from dry natural gas normally poses no particular problem. However, care should be taken when sampling mercury from natural gases under nearly condensing conditions (see ISO 6570).

The two parts of ISO 6978 describe the principles of sampling and specify the general requirements for methods for sampling mercury and for determining total mercury in pipeline quality natural gas. This part of ISO 6978 specifies a method of sampling mercury by chemisorption on iodine-impregnated silica gel whereas Part 2 specifies a method of sampling mercury by amalgamation on gold/platinum alloy thread.