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Natural gas — Determination of sulfur compounds — Determination of total sulfur content by ultraviolet fluorescence method

Gaz naturel — Détermination des composés soufrés — Détermination de la teneur en soufre total par la méthode par fluorescence UV

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Foreword

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

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Introduction

Four methods for determination of sulfur compounds in natural gas already exist as International Standards:

— ISO 6326-3, *Natural gas — Determination of sulfur compounds — Part 3: Determination of hydrogen sulfide, mercaptan sulfur and carbonyl sulfide sulfur by potentiometry*;

— ISO 6326-5, *Natural gas — Determination of sulfur compounds — Part 5: Lingener combustion method*;

— ISO 19739*, Natural gas — Determination of sulfur compounds using gas chromatography*;

— ISO 16960, *Natural gas — Determination of sulfur compounds —Determination of total sulfur by oxidative microcoulometry method*.

Ultraviolet fluorescence method is more efficient method compared with potentiometry, because it can measure the result value at once. It is also environment friendly compared with potentiometry, Lingener and oxidative microcoulometry methods which use toxic and hazardous reagents. Moreover, it is much more convenient and stable than existing natural gas total sulfur analysis method, because the method is sensitive to less number of interference factors.

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Natural gas — Determination of sulfur compounds — Determination of total sulfur content by ultraviolet fluorescence method

WARNING — The majority of sulfur compounds are extremely toxic and thus present a serious health hazard if handled without precautions.

1 Scope

This method applies to the determination of total sulfur content in natural gas expressed as sulfur mass concentration ranging from 1 mg/m^3 to 200 mg/m^3. Natural gas with sulfur contents above 200 mg/m^3 can be analysed after dilution with a suitable sulfur-free solvent.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6141, *Gas analysis — Requirements for certificates for calibration gases and gas mixtures*

ISO 10715, *Natural gas — Sampling guidelines*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
absorption
extraction of one or more components from a mixture of gases when brought into contact with a liquid

3.2
adsorption
retention, by physical or chemical forces of gas molecules, dissolved substances, or liquids by the surfaces of solids or liquids which they are in contact

3.3
sorption
process in which one substance takes up or holds another (by either absorption or adsorption)

4 Test conditions

The test conditions are the same as the calibration conditions.

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