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Interested committees:

Title: Draft BS ISO 24833 Natural Gas - Upstream area - Determination of elemental sulfur solubility by saturated dissolution method.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/DIS 24833

Natural Gas — Upstream area — Determination of elemental sulfur solubility by saturated dissolution method

ICS: 75.060

ISO/TC 193/SC 3

Secretariat: **SAC**

Voting begins on:
2025-03-28

Voting terminates on:
2025-06-20

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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.

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This document was prepared by Technical Committee ISO/TC 193 *Natural gas*, Subcommittee SC 3 *Upstream area*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

During the exploitation and transportation of high-sulfur natural gas, elemental sulfur in the gas may be deposited in the reservoirs, wellbore, and pipelines. In reservoirs, sulfur deposits can reduce permeability significantly, hindering fluid flow and lowering the production efficiency and capacity of gas wells. In pipelines, sulfur deposits can cause blockage, which in severe cases may lead to ruptures and leaks, increasing safety risks. Additionally, sulfur deposits on equipment and pipelines accelerate corrosion, shorten their service life and increase maintenance costs. Therefore, sulfur deposition not only results in direct economic losses to oil and gas operations but also poses safety and environmental risks, requiring urgent and effective management measures.

Determining the sulfur solubility is crucial in addressing sulfur deposits. According to experimentally studying the sulfur solubility under various pressure and temperature conditions, a comprehensive understanding of sulfur dissolution characteristics can be achieved. This enables the assessment of the risk of sulfur precipitation under specific conditions. This knowledge allows engineers to optimize the operation system of sulfur-containing gas wells and pipelines. For example, adjust pressure and temperature to reduce its precipitation and deposition. Additionally, determining sulfur solubility can aid in developing models to predict sulfur deposition. These models quantitatively describe sulfur precipitation patterns, helping to identify potential deposition issues early so that appropriate preventive measures can be implemented. Through these preventive measures, sulfur deposits in gas production and transportation can be controlled in a scientific and effective way, minimizing their impact on operations.

The samples tested in this document include sour gas collected from downhole, wellhead, or separator by using a sampler, or sour gas prepared in the laboratory. This document does not involve the natural gas sampling process, for which the procedure and safety requirements should follow existing standards.

Currently, there are various methods to determine the elemental sulfur solubility, but no unified standard has been established. Consistent methods are essential for comparable results. Establishing this standard will ensure valid data and high-quality analysis. Therefore, a unified solubility determination method is crucial for oil and gas developers, service companies, investors, governments, and other stakeholders. This document aims to provide a simple and reliable method for determining the elemental sulfur solubility in sour gas fields.