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Natural gas — Coal-based synthetic natural gas quality designation and the applicability of ISO/TC 193 standards

National foreword

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Foreword

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

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Introduction

Coal-based synthetic natural gas (CBSNG) is a natural gas substitute. It refers to a natural gas-like mixture that is synthesized from coal. After gasification or coking, the coal releases gas that mainly contains CO, CO_2 and H_2. Then after the gas cleaning, the water gas shift and methanation process consecutively, the final product is coal based synthetic natural gas.

During the production process, the sulphur, CO_2, particle and NO_x emission can be controlled to a very low level compared to the direct utilization of coal. So the CBSNG can be considered as a clean energy resource.

At present, the production of CBSNG is mainly in the United States and China. There are plans of CBSNG projects also in South Korea, Ukraine, and Brazil.

Typical CBSNG contains more than 90 % methane and up to 5 % hydrogen, as well as a small portion of nitrogen and carbon dioxide, minor ethane, propane and traces of ammonia. This document aims to promote communication and coordination among countries, and to support the smooth progress of natural gas substitute development, production and custody transfer.

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Technical Report **ISO/TR 17910:2024(en)**

Natural gas — Coal-based synthetic natural gas quality designation and the applicability of ISO/TC 193 standards

1 Scope

This document introduces the production process, the distribution and quality designation of coal-based synthetic natural gas (CBSNG) in many places around the world, and examines whether ISO/TC 193 standards for sampling, test and calculation methods are applicable to the CBSNG product.

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 14532, *Natural gas — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14532 and the following 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 https://www.electropedia.org/

3.1
natural gas
NG
complex gaseous mixture of hydrocarbons, primarily methane, but generally includes ethane, propane and higher hydrocarbons, and some non-combustible gases such as nitrogen and carbon dioxide

Note 1 to entry: Natural gas can also contain components or containments such as sulfur compounds and/or other chemical species.

[SOURCE: ISO 14532:2014, 2.1.1.1]

3.2
indirect sampling
sampling in situations where there is no direct connection between the natural gas to be sampled and the analytical unit

[SOURCE: ISO 14532:2014, 2.3.1.2]

3.3
representative sample
sample having the same composition as the natural gas sample when the latter is considered as a homogeneous whole

[SOURCE: ISO 14532:2014, 2.3.4.2]

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