

Analysis of fuel gases —

Part 11: Methods of non-manufactured gases —

Section 11.2 Determination of potential hydrocarbon liquid content —

Subsection 11.2.2 Weighing method

[ISO title: Natural gas — Determination of potential hydrocarbon liquid content — Part 2: Weighing method]

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Environment and Pollution Standards Committee (EPC/-) to Technical Committee EPC/46, upon which the following bodies were represented:

- British Ceramic Research Association
- British Gas Corporation
- Cement Makers' Federation
- Chemical Industries Association
- Department of Energy (Gas Standards)
- Department of Trade and Industry (Electronics Application Division)
- Department of Trade and Industry (Laboratory of the Government Chemist)
- Department of Trade and Industry (Warren Spring Laboratory)
- Electricity Supply Industry in England and Wales
- GAMBICA (BEAMA Ltd.)
- Institute of Petroleum
- Institution of Chemical Engineers
- Institution of Gas Engineers
- National Coal Board
- Society of Chemical Industry
- Society of Glass Technology
- Society of Motor Manufacturers and Traders Limited
- Water-tube Boilermakers' Association

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- British Compressed Gases Association
- British Laboratory Ware Association

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National foreword

This Subsection of BS 3156 has been prepared under the direction of the Environment and Pollution Standards Committee. It is identical with ISO 6570-2:1984 “*Natural gas — Determination of potential hydrocarbon liquid content — Part 2: Weighing method*”, published by the International Organization for Standardization (ISO). ISO 6570-2 was prepared as a result of discussions in Technical Committee 158, Gas Analysis, in which the UK has participated.

BS 3156 was first published as a single standard in 1959 under the title “*Methods for the sampling and analysis of fuel gases*”. A first revision was carried out in 1968 under the title “*Methods for the analysis of fuel gases*”, Parts 1, 2 and 3 being published in that year. Parts 4 and 5 of BS 3156 were published in 1969. This new series of BS 3156, which begins at Part 10, will incorporate methods prepared by ISO/TC 158. In addition, it is intended to revise Parts 1 to 5 and publish them in the new series.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

Wherever the words “part of ISO 6570” appear, referring to this standard, they should be read as “Subsection of BS 3156”.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

In British Standards it is current practice to use the spelling “sulphur”, etc. instead of “sulfur”, etc.

Cross-references

International Standard	Corresponding British Standard
	BS 3156: <i>Analysis of fuel gases</i> Part 11: <i>Methods for non-manufactured gases</i> Section 11.2: <i>Determination of potential hydrocarbon liquid content</i>
ISO 6570-1:1983	Subsection 11.2.1:1986 <i>General introduction</i> (Identical)
ISO 6570-3:1984	Subsection 11.2.3:1986 <i>Volumetric method</i> (Identical)

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope and field of application

This part of ISO 6570 specifies a weighing method for the determination of the potential hydrocarbon liquid content of natural gas.

Weighing is carried out manually but any automatic weighing method can be used provided that the accuracy of the determination is not affected.

The principles of, and general requirements for, methods for the determination of the potential hydrocarbon liquid content are described in ISO 6570-1. An alternative volumetric method for the determination of potential hydrocarbon liquid content is specified in ISO 6570-3.

2 References

ISO 6570-1, *Natural gas — Determination of potential hydrocarbon liquid content — Part 1: Principles and general requirements.*

ISO 6570-3, *Natural gas — Determination of potential hydrocarbon liquid content — Part 3: Volumetric method.*

3 Principle

See ISO 6570-1.

The quantity of liquid accumulated during the measuring period is determined by comparing the mass of the condensate separator at the start and at the end of a measuring period.

In order to check the efficiency of separator, a checking filter (glass wool filter) may be installed downstream of the separator in the same thermostatically controlled bath. Experience has shown that this filter may be necessary when measurements are carried out immediately downstream of a pressure reducer in order to catch any fine mist which may be present.

4 Apparatus

WARNING — The apparatus shall comply with relevant safety regulations.

The general arrangement of the measuring installation is shown in Figure 1.

The measuring installation shall meet the general requirements set out in ISO 6570-1.

The separator and filter specified in 4.1 and 4.3 respectively are intended for use at a maximum working pressure of 8 MPa. The actual equipment used shall have been tested to an appropriate higher maximum pressure in accordance with the requirements of national safety regulations and shown to be safe.

In addition, the following equipment is required.

4.1 Cooling coil and cyclone separator (see Figure 2)

The sample shall be cooled to the desired measuring temperature by passing it through a coiled tube in a cooling bath. This cooling coil shall be of internal diameter 2 to 4 mm and length 2,5 m. (These dimensions have been chosen so that the gas has accurately assumed the temperature of the bath at the end of the coil when passed at a flow rate up to 1,5 m³/h.)

NOTE Unless otherwise specified, gas volumes are in cubic metres at 273,15 K and 101 325 Pa.

The cyclone separator, which is permanently connected to the cooling coil, shall have an inlet of diameter 1 mm in order to obtain sufficient centrifugal action as the sample enters the separator barrel. Provision can be made for measuring or recording the gas temperature in the barrel (see Figure 3).

NOTE The separator shown in Figure 2 has been tested at pressures up to 25 MPa.

4.2 Glass wool filter (see Figure 4)

The glass wool filter shall be packed with chemically pure, fine glass wool fibre. The glass wool block shall be compressed by means of a screw. The glass wool filter shall be immersed in the same bath as the cyclone separator. The line connecting the separator and glass wool filter shall be as short as possible.

NOTE The filter shown in Figure 4 has been tested at pressures up to 25 MPa.

4.3 Balance

A balance capable of weighing 2 kg with an accuracy of 0,01 g is required.

5 Sampling

The general conditions for representative sampling set out in ISO 6570-1 shall be complied with.

After the equipment has been connected and filled with gas to the operating pressure, check for leaks using a soap solution. When using a sample from a cylinder, it is advantageous to use nitrogen for checking leakage to conserve the sample gas.