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## Hard coal and coke — Manual sampling

*Houille et coke — Échantillonnage manuel*



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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 18283 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*, Subcommittee SC 4, *Sampling*.

This first edition of ISO 18283 cancels and replaces ISO 1988:1975 and ISO 2309:1980, which have been technically revised.

## Introduction

Mechanical sampling from moving streams is the preferred method for sampling fuels. However, often mechanical facilities are not available. Moreover, for sized coal or coke, mechanical sampling can be a problem because of (size) degradation by the sampling system.

The fundamental requirements of sampling are that all particles of the fuel in the lot are accessible to the sampling instrument and that each individual particle has an equal probability of being selected and included in the sample.

When sampling manually, conditions are often far from ideal. The methods described in this International Standard are intended to obtain the most representative sample that can be achieved. Manual sampling should only be applied if no possibility for mechanical sampling exists.

The purpose of taking and preparing a sample of fuel is to provide a test sample that, when analysed, provides test results representative of the lot sampled.

The first stage of sampling, known as primary sampling, is the taking from positions distributed over the entire lot of an adequate number of fuel portions known as primary increments. The primary increments are then combined into a sample, either "as taken" or after having been divided, in order to reduce the mass of the sample to a manageable size. From this sample, the required number and types of test samples are prepared by a series of processes jointly known as sample preparation.

In devising a sampling procedure, it is also essential to guard against bias in the taking of increments. Bias can arise from

- a) incorrect location/timing of increments,
- b) incorrect delimitation and extraction of increments,
- c) loss of integrity of increments after extraction.

Methods for measuring bias are described in this International Standard.

# Hard coal and coke — Manual sampling

**CAUTION —** Sampling can involve hazardous materials, operations, equipment and situations. However, it is beyond the scope of this International Standard to address all of the safety problems associated with the use of this International Standard. It is, therefore, the responsibility of the parties concerned to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

## 1 Scope

ISO 18283 defines the basic terms used in manual sampling of hard coal and coke and describes the general principles of sampling. It specifies procedures and requirements for establishing a manual sampling scheme, methods of manual sampling, sampling equipment, handling and storage of samples, sample preparation and a sampling report.

This International Standard applies to manual sampling from fuels in movement. Guidelines for manual sampling from fuels in stationary situations are given in Annex B, but this method of sampling does not provide a representative test sample and the sampling report shall state this.

ISO 18283 does not include sampling of brown coals and lignites, which is described in ISO 5069-1 and ISO 5069-2, nor sampling from coal seams, for which guidance is given in ISO 14180. Mechanical sampling of coal and coke is covered in ISO 13909 (all parts).

## 2 Normative references

The following referenced documents are indispensable for the application 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 579, *Coke — Determination of total moisture*

ISO 589:2003, *Hard coal — Determination of total moisture*

ISO 687, *Solid mineral fuels — Coke — Determination of moisture in the general analysis test sample*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 13909-7, *Hard coal and coke — Mechanical sampling — Part 7: Methods for determining the precision of sampling, sample preparation and testing*

ISO 13909-8, *Hard coal and coke — Mechanical sampling — Part 8: Methods of testing for bias*