



BSI Standards Publication

Coal and coke — Mechanical sampling

Part 3: Sampling of coal from stationary lots

National foreword

This British Standard is the UK implementation of ISO 13909-3:2025. It supersedes BS ISO 13909-3:2016, which is withdrawn.

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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**Part 3:
Sampling of coal from stationary lots**

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 27, *Coal and coke*, Subcommittee SC 4, *Sampling*.

This third edition cancels and replaces the second edition (ISO 13909-3:2016), which has been technically revised.

The main changes are as follows:

- the title was updated to align with the ISO 13909 series;
- the scope was updated;
- several aspects of the sampling were updated to state of the art.

A list of all parts in the ISO 13909 series can be found on the ISO website.

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.

Coal and coke — Mechanical sampling —

Part 3: Sampling of coal from stationary lots

1 Scope

This document specifies procedures for the mechanical sampling of coal from stationary lots, for example, from wagons, barges, ships and stockpiles. These procedures are to be used when it is not possible to sample the lots during loading or discharge according to ISO 13909-2. Procedures for sample preparation are given in ISO 13909-4.

This document is applicable to mechanical sampling from stationary coal lots, to obtain samples from which test samples for the determination of moisture, and for general analysis including physical and chemical tests, can be prepared in accordance with the requirements and recommendations set out in ISO 13909-4.

In this document, the principles and procedures for designing a sampling scheme are given, together with typical examples of applications; in addition, practices for the execution of sampling in different sampling situations are described. The methods described are limited to those on which it is possible to conduct a test for bias.

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 13909-1, *Coal and coke — Mechanical sampling — Part 1: General introduction*

ISO 13909-2, *Coal and coke — Mechanical sampling — Part 2: Sampling of coal from moving streams*

ISO 13909-4, *Coal and coke — Mechanical sampling — Part 4: Preparation of test samples of coal*

ISO 13909-7:2025, *Coal and coke — Mechanical sampling — Part 7: Methods for determining the precision of sampling, sample preparation and testing*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13909-1 apply.

ISO and IEC maintain terminology 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/>

4 Establishing a sampling scheme

4.1 General

The general procedure for establishing a sampling scheme is as follows.

- a) Define the quality parameters to be determined and the types of samples required.
- b) Define the lot.
- c) Define or assume the precision required (see [4.3.1](#)).
- d) Determine the method of combining the increments into samples and the method of sample preparation (see ISO 13909-4).
- e) Determine or assume the variability of the coal (see [4.3.2](#)) and the variance of preparation and testing (see [4.3.3](#)). Methods for determining variability and variance of preparation and testing are given in ISO 13909-7.
- f) Establish the number of sub-lots and the number of increments per sub-lot required to attain the desired precision (see [4.3.4](#)).
- g) Decide upon the sampling interval, in tonnes.
- h) Ascertain the nominal top size of coal for the purpose of determining the minimum mass of sample (see [4.4](#) and [Table 1](#)).

The nominal top size may initially be ascertained by consulting the consignment details, or by visual estimation, and may be verified, if necessary, by preliminary test work.

- i) Determine the minimum average increment mass (see [4.5](#)).

4.2 Design of the sampling scheme

4.2.1 Material to be sampled

The first stage in the design of the scheme is to identify the coal to be sampled. Samples may be required for technical evaluation, process control, quality control and for commercial reasons by both the producer and the customer. It is essential to ascertain exactly at what stage in the coal-handling process the sample is required and, as far as practicable, to design the scheme accordingly. In some instances, however, it may prove impracticable to obtain samples at the preferred points and, in such cases, a more practicable alternative is required.

4.2.2 Division of lots

A lot may be sampled as a whole or as a series of sub-lots, e.g. coal despatched or delivered over a period of time, a ship load, a train load, a wagon load or coal produced in a certain period (e.g. a shift).

It can be necessary to divide a lot into a number of sub-lots in order to improve the precision of the results.

For lots sampled over long periods, it can be expedient to divide the lot into a series of sub-lots, obtaining a sample for each.

4.2.3 Precision of sampling

After the desired sample precision has been selected, the number of sub-lots and the minimum number of increments per sub-lot collected shall be determined as described in [4.3.4](#), and the average mass of the primary increments shall be determined as described in [4.5](#).

For single lots, the quality variation shall be assumed as the worst case (see [4.3.2](#) and [4.3.3](#)). The precision of sampling achieved may be measured using the procedure of replicate sampling (see ISO 13909-7).