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Hard coal and coke -- Mechanical sampling -- Part 1: General introduction

Houille et coke -- Échantillonnage mécanique -- Partie 1: Introduction générale

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Hard coal and coke — Mechanical sampling —

Part 1: General introduction

Houille et coke — Échantillonnage mécanique —
Partie 1: Introduction générale

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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 3.

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 part of ISO 13909 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 13909-1 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*, Subcommittee SC 4, *Sampling*.

ISO 13909 cancels and replaces ISO 9411-1:1994, *Solid mineral fuels — Mechanical sampling from moving streams — Part 1: Coal* and ISO 9411-2:1993, *Solid mineral fuels — Mechanical sampling from moving streams — Part 2: Coke*, of which it constitutes a technical revision. It also supersedes the methods of mechanical sampling of coal and coke given in ISO 1988:1975, *Hard coal — Sampling* and ISO 2309:1980, *Coke — Sampling*.

ISO 13909 consists of the following parts, under the general title *Hard coal and coke — Mechanical sampling*:

- *Part 1: General introduction*
- *Part 2: Coal — Sampling from moving streams*
- *Part 3: Coal — Sampling from stationary lots*
- *Part 4: Coal — Preparation of test samples*
- *Part 5: Coke — Sampling from moving streams*
- *Part 6: Coke — Preparation of test samples*
- *Part 7: Methods for determining the precision of sampling, sample preparation and testing*
- *Part 8: Methods of testing for bias*

Hard coal and coke — Mechanical sampling —

Part 1: General introduction

1 Scope

This part of ISO 13909 defines the basic terms used in the sampling of solid mineral fuels, describes the general principles of sampling and details the information to be provided in the documentation and the sampling report. It also lists the other parts and gives guidance on the selection of the appropriate part.

ISO 13909 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. Manual sampling of coal and coke is covered in ISO 1988 and ISO 2309.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 13909. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 13909 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 565:1990, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*.

ISO 3310-1:2000, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*.

ISO 5725-1:1994, *Accuracy (trueness and precision) of measurement methods and results — Part 1: General principles and definitions*.

3 Terms and definitions

For the purposes of this part of ISO 13909, the following terms and definitions apply.

3.1
air-drying
process of bringing the moisture content of the sample near to equilibrium with the atmosphere in the area in which further reduction and division of the sample are to take place

NOTE Air-drying to equilibrium with the atmosphere applies to coal. Drying of coke is generally to facilitate sample preparation.

3.2
bias
systematic error which leads to the average value of a series of results being persistently higher or persistently lower than those which are obtained using a reference sampling method

3.3
coefficient of variation
standard deviation expressed as a percentage of the absolute value of the arithmetic mean

3.4
common sample
sample collected for more than one intended use

3.5
continuous sampling
taking of a sample from each consecutive sub-lot so that increments are taken at uniform intervals whenever the fuel is handled at the point of sampling

3.6
cut
increment (3.15) taken by a primary sampler or sample divider

3.7
cutter
mechanical sampling device which extracts increment(s)

3.8
divided increment
part obtained from the division of the increment in order to decrease its mass

NOTE Such division may be done with or without prior size reduction

3.9
duplicate sampling
particular case of replicate sampling with only two replicate samples

3.10
error
difference between the observation and the accepted reference value as defined in ISO 5725-1:1994, 3.5

NOTE This can be designated as systematic error (bias) or random error.

3.11
fixed mass division
method of sample division in which the mass retained is predetermined and independent of the mass of the feed

3.12
fixed ratio division
method of sample division in which the division ratio is predetermined

NOTE In fixed ratio division, the mass of sample retained is a fixed proportion of the mass of the feed.

3.13
fuel
hard coal or coke

3.14
general-analysis test sample
sample, prepared to pass a sieve of nominal size of openings 212 μm complying with ISO 3310-1:2000, used for the determination of most chemical and some physical characteristics

3.15
increment
portion of fuel extracted in a single operation of the sampling device

3.16
intermittent sampling
taking of samples from only certain sub-lots of fuel

3.17
lot
defined quantity of fuel for which the quality is to be determined

NOTE A lot may be divided into sub-lots.

3.18
manual sampling
collection of increments by human effort

3.19
mass-basis sampling
taking of increments whereby the position of each increment to be collected from the stream of fuel is measured by a mass interval of stream flow and the increment mass is fixed

3.20
maximum tolerable bias
MTB
maximum bias that can be tolerated considering the practical consequences of such a value

3.21
mechanical sampling
collection of increments by mechanical means

3.22
mechanical sampling system
combination of sampling and sample preparation performed mechanically

3.23
moisture sample
sample taken specifically for the purpose of determining total moisture

NOTE For coke, this sample may also be used for general analysis.

3.24
nominal top size
aperture size of the smallest sieve in the range included in the R 20 Series (as defined in ISO 565, square hole) on which not more than 5 % of the sample is retained

3.25
off-line sample preparation
sample preparation performed manually or mechanically on the samples produced by the mechanical sampling system, using equipment not integral to the mechanical sampling system itself

3.26
on-line sample processing
processing of the primary sample material using equipment integral with the sampling system

3.27
outlier
result which appears to be in disagreement with others from the same set of observations and which arouses suspicion that there has been a mistake in the sampling, sample preparation or analysis

3.28
physical sample
sample taken specifically for the determination of physical characteristics, such as physical strength indices or size distribution