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INTERNATIONAL ISO

Second edition
2022-03

Coal and coke — Manual sampling

Houille et coke — Échantillonnage manuel

Reference number
ISO 18283:2022(E)

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Published in Switzerland

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Contents

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

This second edition cancels and replaces the first edition (ISO 18283:2006), which has been technically revised. It also incorporates the Technical Corrigendum ISO 18283:2006/Cor.1:2006.

The main changes are as follows:

— Removal of any reference to intermittent sampling. Only continuous sampling is permitted.

— Discussion of the need to eliminate bias prior to discussing precision.

— Deletion of the separate tables on calculated numbers of increments.

— Deletion of the table on reference increment mass.

— Separation of tables for minimum sample masses for coal and coke.

— Removal of the table for reduced minimum sample mass for large sizes of coal and coke.

— Inclusion of manual sampling from a moving conveyor, provided a risk assessment is conducted at the outset and that this type of sampling is only permitted on a slow-moving belt or at low flow rates. Furthermore, at higher flow rates, mechanical assistance is necessary to ensure that primary increments can be collected safely.

— Restriction of the type of probes that can be used.

— Deletion of augers for manual sampling.

— Inclusion of a photograph of a gated riffle.

— Exclusion of sampling of large fuels in excess of the nominal top sizes in Tables 1, 2 and 4, because it is not practical.

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Introduction

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

The fundamental requirements of sampling are that all particles of the coal or coke in the lot are accessible to the sampling instrument and thus have a non-zero chance of being selected, and that each individual particle of equal mass 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 document are intended to obtain the most representative sample that can be safely achieved. Manual sampling should only be applied if no possibility for mechanical sampling exists.

The purpose of taking and preparing a sample of coal or coke is to provide a test sample that, when analysed, provides test results representative of the lot or sub-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 coal or coke portions known as primary increments. The primary increments are then combined into a sample. 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) particle size segregation at the point of sampling,

d) loss of integrity of increments after extraction.

Methods for measuring bias are described in ISO 13909-8.

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