BS ISO 14180:2017

BSI Standards Publication

Solid mineral fuels — Guidance on the sampling of coal seams

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National foreword

This British Standard is the UK implementation of ISO 14180:2017. It supersedes BS ISO 14180:1998, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PTI/16, Solid mineral fuels.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

ISBN 978 0 580 94120 7

ICS 73.040

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2017.

Amendments/corrigenda issued since publication

Date	Text affected

BS ISO 14180:2017

INTERNATIONAL STANDARD

ISO 14180

Second edition
2017-04-01

Solid mineral fuels — Guidance on the sampling of coal seams

Combustibles minéraux solides — Principes directeurs pour l'échantillonnage des veines de charbon

Reference number
ISO 14180:2017(E)

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Foreword

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see the following URL: http://www.iso.org/iso/foreword.html

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

This second edition cancels and replaces the first edition (ISO 14180:1998), which has been technically revised

Introduction

Coal is one of the most challenging materials to sample due to its characteristic heterogeneity. A coal seam can consist of a single stratum of one lithotype of relatively uniform maceral constitution, or more commonly, consist of a number of layers of different coal lithotypes varying in thickness and lateral extent. The seam can also contain discrete layers of inorganic sediments or carbonaceous shales of varying thickness. Veins of concordant or discordant secondary mineral rock could also be present. The lithotype layers can vary considerably in hardness, texture and structure according to the nature of the coal and inorganic sediments. The inorganic layers can also thicken laterally, splitting the seam into two or more separate units which could require multiple samples.

It is strongly recommended that a collaborative team including geologists, mining engineers, safety, land and laboratory professionals review each proposed sampling program to help ensure optimal effectiveness and efficiency are obtained.

The purpose of sampling coal for any resource evaluation is to predict the expected quality of the produced coal from a given locale. Therefore, the fundamental goal of each sampling effort is the collection of representative samples of the seam(s) at each sampling location. A properly executed sampling program needs to accurately define both the lateral variation in coal quality and the average quality for a specified area.

After inspection of any seam, the sampler designes a sampling program with sufficient representative samples to define the range of expected coal quality. In variable seams it is necessary to take a number of samples to improve the representativity of sampling.

In operating mines, the manager needs to be consulted and approval needs to be obtained before sampling sites are selected and sampling proceeds. Where there is no operating mine the area or tenement owner and or operator is consulted.

In all sampling situations, experienced and qualified personnel will be required for supervision and to ensure that accurate records are made of location, thickness and lithotype descriptions and that all safety precautions have been addressed.

Methods of sampling for physical, chemical, petrographic or utilization properties are described for the following:

a) sampling from small and large diameter drill cores;

b) sampling from exposed seam faces;

c) sampling from trial open-cut excavations;

d) sampling from underground workings.

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INTERNATIONAL STANDARD **ISO 14180:2017(E)**

Solid mineral fuels — Guidance on the sampling of coal seams

SAFETY PRECAUTIONS — It is strongly recommended that a risk analysis of the sampling exercise be undertaken by an experienced safety officer before work begins.

1 Scope

This document provides guidance on methods for taking samples from coal seams in the ground, whether from exploration areas or tenements, or from operating underground or open-cut mines. The following methods are described:

a) sampling of small or large diameter holes;

b) drill cuttings sampling;

c) open-cut slot sampling;

d) adit, drift or shaft sampling;

e) pillar sampling;

f) channel sampling;

g) strip sampling.

This document does not apply to sampling from moving streams in production or any other source of coal that is not *in situ*.

Recommendations are made for selection and preparation of the sampling site, and methods are described for taking both small and bulk samples, and for preparing the samples for transport.

NOTE Annex A gives an example of a channel sample record form that can be used to record sampling and other relevant data, and ISO 13909 or ISO 18283 describes how to determine the mass of a representative sample at various nominal top sizes.

2 Normative reference

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 1213-2, *Solid mineral fuels — Vocabulary — Part 2: Terms relating to sampling, testing and analysis*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1213-2 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/