
Hard coal — Sampling of slurries

Houille — Échantillonnage des schlamms



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS

© ISO 2006

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	v
1 Scope	1
2 Normative references	1
3 Definitions	1
4 Principles of sampling slurries	2
4.1 General	2
4.2 Sampling errors	3
4.3 Sampling and overall variance	6
5 Sampling schemes	7
6 Minimization of bias and unbiased increment mass	13
6.1 Minimizing bias	13
6.2 Volume of increment for falling stream samplers to avoid bias	14
6.3 Volume of increment for manual sampling to avoid bias	14
7 Precision of sampling and determination of increment variance	15
7.1 Overall precision	15
7.2 Primary increment variance	15
7.3 Preparation and testing variance	16
8 Number of sub-lots and number of increments per sub-lot	16
9 Minimum mass of solids in lot and sub-lot samples	17
9.1 General	17
9.2 Minimum mass of solids in lot samples	17
9.3 Minimum mass of solids in sub-lot samples	17
9.4 Minimum mass of solids in lot and sub-lot samples after size reduction	17
10 Time-basis sampling	18
10.1 General	18
10.2 Sampling interval	18
10.3 Cutters	18
10.4 Taking of increments	18
10.5 Constitution of lot or sub-lot samples	19
10.6 Division of increments and sub-lot samples	19
10.7 Division of lot samples	19
10.8 Number of cuts for division	19
11 Stratified random sampling within fixed time intervals	19
12 Mechanical sampling from moving streams	20
12.1 General	20
12.2 Design of the sampling system	20
12.3 Slurry sample cutters	22
12.4 Mass of solids in increments	23
12.5 Number of primary increments	23
12.6 Routine checking	23
13 Manual sampling from moving streams	23
13.1 General	23
13.2 Choosing the sampling location	23
13.3 Sampling implements	24
13.4 Mass of solids in increments	24
13.5 Number of primary increments	24

13.6	Sampling procedures	25
14	Sampling of stationary slurries	25
15	Sample preparation procedures	25
15.1	General	25
15.2	Reduction mills	25
15.3	Sample division	25
15.4	Chemical analysis samples	25
15.5	Physical test samples	26
16	Packing and marking of samples	26
Annex A (informative)	Examples of correct slurry devices	27
Annex B (informative)	Examples of incorrect slurry sampling devices	30
Annex C (normative)	Manual sampling implements	34
Bibliography	35

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 20904 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*, Subcommittee SC 4, *Sampling*.

This document is a preview generated by EVS

Hard coal — Sampling of slurries

1 Scope

This International Standard sets out the basic methods for sampling fine coal, coal rejects or tailings of nominal top size < 4 mm that is mixed with water to form a slurry. At very high ratios of fine solids to water when the material assumes a soft plastic form, the mixture is correctly termed a paste. Sampling of pastes is not covered in this International Standard.

The procedures described in this International Standard primarily apply to sampling of coal that is transported in moving streams as a slurry. These streams can fall freely or be confined in pipes, launders, chutes, spirals or similar channels. Sampling of slurries in stationary situations, such as a settled or even a well-stirred slurry in a tank, holding vessel or dam, is not recommended and is not covered in this International Standard.

This International Standard describes procedures that are designed to provide samples representative of the slurry solids and particle size distribution of the slurry under examination. After draining the slurry sample of fluid and measuring the fluid volume, damp samples of the contained solids in the slurry are available for drying (if required) and measurement of one or more characteristics in an unbiased manner and with a known degree of precision. The characteristics are measured by chemical analysis or physical testing or both.

The sampling methods described are applicable to slurries that require inspection to verify compliance with product specifications, determination of the value of a characteristic as a basis for settlement between trading partners or estimation of a set of average characteristics and variances that describes a system or procedure.

Provided flow rates are not too high, the reference method against which other sampling procedures are compared is one where the entire stream is diverted into a vessel for a specified time or volume interval. This method corresponds to the stopped-belt method described in ISO 13909-2.

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 1213-1, *Solid mineral fuels — Vocabulary — Part 1: Terms relating to coal preparation*

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

ISO 13909-1, *Hard coal and coke — Mechanical sampling — Part 1: General introduction*

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

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

3 Definitions

For the purpose of this document, the definitions given in ISO 13909-1, ISO 1213-1 and ISO 1213-2 apply.