
**Hard coal — Determination of total
moisture**

Houille — Détermination de l'humidité totale



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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 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 589 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*, Subcommittee SC 5, *Methods of analysis*.

This fourth edition cancels and replaces the third edition (ISO 589:2003), which has been technically revised.

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Introduction

Moisture is an important parameter in respect of coal quality.

The moisture content of coal is not an absolute value and conditions for its determination have to be standardized. It is expected that the results given by the different methods specified here should be comparable within the limits of the tolerance quoted.

It is always necessary that the determination of the total moisture content of hard coals be considered in close connection with sampling. Therefore, this International Standard has been prepared in close relationship with the ISO standards for mechanical sampling ISO 13909 (all parts) and manual sampling ISO 18283.

A major problem with the preparation of test samples for the determination of moisture is the risk of bias due to inadvertent loss of moisture. This is dependent on the tightness of the sealing of sampling containers, the level of moisture content in the sample, the ambient conditions, the type of coal and the reduction and division procedures used. This is described in detail in ISO 13909-4 or ISO 18283.

Depending on the mass, the nominal top size and the facilities available where samples are taken, it is possible to dry the sample directly after sampling (air-drying), then to reduce the particle size and prepare a test sample for determination of moisture in the air-dried sample. Alternatively, the whole sample may be transported to the laboratory and the total moisture determined.

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Hard coal — Determination of total moisture

1 Scope

This International Standard describes two methods for determination of the total moisture content of hard coals, a two-stage method and a single-stage method. For either method there is a choice between drying in air and drying in a nitrogen atmosphere. Depending on the coal rank, there may be systematic differences between the results obtained by drying in the different atmospheres on subsamples of the same sample. Drying in a nitrogen atmosphere is suitable for all hard coals, while drying in air is only suitable for hard coals not susceptible to oxidation.

NOTE The term “not susceptible to oxidation” cannot be defined easily. Usually, high-rank coals such as anthracites are not oxidized under the conditions described in this International Standard. For all other types of coal, this has to be verified by experiments.

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

ISO 11722, *Solid mineral fuels — Hard Coal — Determination of moisture in the general analysis test sample by drying in nitrogen*

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

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

ISO 13909-3, *Hard coal and coke — Mechanical sampling — Part 3: Coal — Sampling from stationary lots*

ISO 13909-4:2001, *Hard coal and coke — Mechanical sampling — Part 4: Coal — Preparation of test samples*

ISO 18283:2006, *Hard coal and coke — Manual sampling*

3 Terms and definitions

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