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## **Classification of coals**

*Classification des charbons*



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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 11760 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*.

## Introduction

Coals occur worldwide and vary significantly in their physical and chemical characteristics for a variety of reasons, both with respect to the organic coal substance and to the associated mineral matter that is always present to varying extents. Coals are an important source of energy, as well as being essential for the production of metallurgical cokes, and are widely used as feedstock for other industrial processes such as in the production of gaseous fuels and synthesis gas. Hence, a wide range of procedures has been developed by the International Organization for Standardization (ISO) for the analysis and testing of coals. These ISO procedures are variously designated as being applicable to “hard coals”, “brown coals” and “lignite”, “bituminous coals” and “anthracite”. There are, however, no ISO definitions that specify the boundaries that apply to these descriptive terms, which all relate to the geological maturity (rank) of the coals. Further, there is no simple system for the classification of coals that can provide, on a comparative basis, an indication of coal characteristics on a worldwide basis. This ISO standard provides a basis for addressing both these issues.

The classification is not intended to be used for commercial purposes because the assessment and selection of coals for a specific purpose require detailed information that enables the likely performance of a coal in a particular application to be anticipated. The wide-ranging list of ISO analyses and tests provides that information.

The development of this ISO standard has been guided by the recently published “*International Classification of in-Seam Coals*”<sup>[14]</sup>. The ISO standard, however, represents a simplified version that incorporates some significant modifications made for reasons given in the classification details that follow.

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# Classification of coals

## 1 Scope

This International Standard describes a simple classification system for coals providing

- guidance on the selection of the appropriate ISO standard procedures for the analyses and testing of coals,
- international comparison of coals in terms of some key characteristics,
- descriptive categorization of coals.

The system is applicable to coals of all ranks, but care is required in relation to the classification of some types of coal.

The system may be applied to a wide range of representative coal samples, provided their exact nature is stated. Such samples include bore-core seam sections and composite samples, raw (as-mined) coal, washed coal, blends of coals of similar rank and selected, specified size fractions.

The system provides a broad framework within which coals can be assessed. The selection of coals for a specific use requires detailed information that enables the likely performance of a coal in a particular application to be anticipated. The wide-ranging list of ISO analyses and test procedures for coals serve this purpose. The selection of the appropriate procedures to be used in assessing a coal depends on the intended use.

## 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 7404-1, *Methods for the petrographic analysis of bituminous coal and anthracite — Part 1: Vocabulary*

ISO 7404-5, *Methods for the petrographic analysis of bituminous coal and anthracite — Part 5: Method of determining microscopically the reflectance of vitrinite*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1213-2, ISO 7404-1 and the following apply.

### 3.1

#### **coal**

carbonaceous sedimentary rock largely derived from plant remains with an associated mineral content corresponding to an ash yield less than, or equal to, 50 % by mass (dry basis)