INTERNATIONAL STANDARD

ISO 12900

First edition
1997-12-15

Corrected and reprinted
1998-09-15

Hard coal — Determination of abrasiveness

Houille — Détermination de l'abrasivité

Reference number
ISO 12900:1997(E)

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.

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.

International Standard ISO 12900 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*.

Annex A of this International Standard is for information only.

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Introduction

The abrasiveness of coal is recognized as a factor in coal operations, from mining to utilization, requiring a standard method of measurement and evaluation, as some coals are more abrasive than others.

The interaction between coal and conveying, storage and crushing equipment results in component wear. In particular, the higher contact pressures in some coal pulverizers result in significant wear.

For the ranking or relative comparison of the abrasiveness of coals, a test was developed [1] which standardized the following equipment variables:

a) test equipment dimensions and tolerances;
b) speed of rotation of wearing components;
c) properties of the wearing components;
d) mass of the test portion;
e) top particle size of the test portion;
f) duration of the test.

The abrasiveness of coal is generally a function of two factors: the physical properties of the coal, in particular moisture content, mineral content and mineral characteristics [1], [2], [3], [4], [5], [6]; the mechanics of the operations to which the coal is subjected.

NOTE — Moisture contents over 10 % in the test sample after air-drying and laboratory equilibration may give anomalous results; the reason for this has not been established.

Wear on coal-pulverizing elements in industrial mills is influenced by the physical characteristics of the coal and its mineral constituents, the mechanical characteristics of the mill, including the milling pressures, alloy material properties and coal feed flow, and the operation of the mill. Abrasiveness as determined by this International Standard has been demonstrated to provide initial empirical estimates of specific wear rates in certain types of industrial tube-ball mills, vertical spindle mills and high-speed hammer mills [3], [6], with different coefficients for each mill type.

Abrasiveness as determined by this International Standard may be of value in providing an initial estimate of the likely wear in other applications, giving the relative effect of different coals.