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STANDARD

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**Hard coal — Size analysis by sieving**

*Houille — Analyse granulométrique par tamisage*



Reference number  
ISO 1953:1994(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 1953 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*.

This second edition cancels and replaces the first edition (ISO 1953:1972), which has been technically revised.

Annexes A, B and C of this International Standard are for information only.

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International Organization for Standardization  
Case Postale 56 • CH-1211 Genève 20 • Switzerland

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## Introduction

Size analysis involves the separation of a sample of coal into size fractions having defined limits. In the methods described in this International Standard the results are expressed in terms of the percentage mass of coal remaining on sieves of different aperture sizes. This information can be of use in a number of applications, including the following: assessing the yields of products from run-of-mine coals; providing design data for coal preparation plants; checking that products from screening plants are within the required limits; assessing the performance of coal-crushing plants; and selecting coals for particular processes and equipment.

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# Hard coal — Size analysis by sieving

## 1 Scope

This International Standard specifies reference methods for the size analysis of coal by manual sieving (wet or dry), using test sieves of aperture sizes between 125 mm and 45  $\mu\text{m}$ . A guide to sampling is given in annex A and notes on the use of mechanical sieving are given in annex B.

This International Standard is applicable to all hard coals. It is not applicable to coke or other manufactured fuels.

In the case of pulverized coal which has been ground so that a high proportion passes through the test sieve of smallest aperture size, the methods described in this International Standard will determine only the percentage oversize.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1213-1:1993, *Solid mineral fuels — Vocabulary — Part 1: Terms relating to coal preparation.*

ISO 1213-2:1992, *Solid mineral fuels — Vocabulary — Part 2: Terms relating to sampling, testing and analysis.*

ISO 1988:1975, *Hard coal — Sampling.*

ISO 3310-1:1990, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth.*

ISO 3310-2:1990, *Test sieves — Technical requirements and testing — Part 2: Test sieves of perforated metal plate.*

## 3 Definitions

For the purposes of this International Standard, the definitions given in ISO 1213-1 and ISO 1213-2 apply.

## 4 Apparatus

### 4.1 For all methods

**4.1.1 Test sieves**, exclusively round-hole or exclusively square-hole, complying with ISO 3310-1 or ISO 3310-2, as appropriate.

### NOTES

1 The recommended series of test sieves for general purposes is 125 mm, 90 mm, 63 mm, 45 mm, 31,5 mm, 22,4 mm, 16 mm, 11,2 mm, 8 mm, 5,6 mm and 4 mm nominal aperture sizes, square-hole, or the same sizes of round-hole sieves. If this series is inadequate for the sizing of graded coals, sieves from the supplementary sizes 100 mm, 80 mm, 50 mm, 40 mm, 25 mm, 20 mm, 12,5 mm, 10 mm and 6,3 mm may be included. For samples containing pieces having a particle size greater than 125 mm, single-hole gauges of the required dimensions may be used for the larger pieces. Test sieves of nominal aperture size 4 mm and less should be of metal wire cloth; the recommended series of nominal aperture sizes is 4 mm, 2,8 mm, 2 mm, 1,4 mm, 1 mm, 710  $\mu\text{m}$ , 500  $\mu\text{m}$ , 355  $\mu\text{m}$ , 250  $\mu\text{m}$ , 180  $\mu\text{m}$ , 125  $\mu\text{m}$ , 90  $\mu\text{m}$ , 63  $\mu\text{m}$  and 45  $\mu\text{m}$ .

2 When a complete size analysis is required, it is preferable, subject to the range of sieve aperture sizes available, that the mass of coal in any size fraction does not exceed 30 % of the total mass of sample being sieved. The largest aperture size sieve should be that on which not more than