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Method of specifying the technical quality of coke for use in blast furnaces

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Committees responsible for this British Standard

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- British Steel Industry
- Coke Oven Managers' Association
- National Coal Board

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Foreword

This revision of this British Standard has been prepared under the direction of the Solid Mineral Fuels Standards Committee. It supersedes the 1968 edition which is withdrawn.

The previous edition described a scheme which, if applied at producers' and consumers' works, enabled comparisons to be made by means of a "points value", based upon approved systems of sampling analysis and testing of coke.

The use of such a "points value" concept is no longer current in the industry and this revision provides a reference standard for the technical assessment of coke when it is subjected to internal transfer and also in international trade.

Attention is drawn to the provisions of the Health and Safety at Work etc. Act 1974 and the need to ensure that appropriate precautions are taken to ensure the safety of personnel carrying out the methods of test referred to in this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard describes a method of specifying the technical quality of coke by listing the characteristics which are most widely used in the technical assessment of blast furnace coke.

In the case of each characteristic specified, reference is made wherever possible to an authoritative source giving detailed procedures for the experimental techniques and evaluation of the appropriate characteristic.

Information is given on typical values for each characteristic and the precision of the test methods.

It also provides guidance which may assist in the selection or choice of those properties which will be of most use in the assessment of coke for particular purposes (see Appendix A).

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Sampling and sample preparation

Sampling and sample preparation of coke for all purposes shall be carried out in accordance with the principles and particular requirements of BS 1017-2. In some instances it is necessary to prepare coke having a restricted range of particle size for a particular test. In such cases techniques of particle size reduction shall be such as to give the required yield of the specified size range.

3 Characteristics

The technical quality of a consignment or lot of coke shall be specified by quoting the values obtained from a sample (see clause 2) by the method stated for the following characteristics:

- a) total moisture content when tested in accordance with BS 1016-2;
- b) ash and volatile matter content when tested in accordance with BS 1016-4;
- c) sulphur content when tested in accordance with BS 1016-7;
- d) phosphorus content when tested in accordance with BS 1016-9;
- e) size of the coke when determined in accordance with BS 1016-18.

In addition the values for one or more of the following characteristics shall be quoted:

- 1) mechanical strength when assessed (see Table 1) either:
 - i) in accordance with BS 1016-13 (Micum test¹⁾ and Irsid drum test); or,
 - ii) in accordance with JIS K 2151:1977²⁾ (JIS drum test); or,
 - iii) in accordance with ASTM 3402-8³⁾ (ASTM tumbler test);
- 2) shatter indices of coke of a specified size when assessed in accordance with BS 1016-13;
- 3) bulk density, true relative density and apparent relative density when determined in accordance with BS 1016-13;
- 4) reactivity when assessed in accordance with the method described in Appendix C.

¹⁾ Appendix B gives details of the extended Micum test.

²⁾ Obtainable from Japanese Industrial Standards Committee, c/o Standards Department, Agency of Industrial Science and Technology, Ministry of International Trade and Industry 1-3-1 Kasumigaseki, Chiyodaku, Tokyo 100, Japan.

³⁾ Obtainable from ASTM, 1916 Race Street, Philadelphia, Pa 19103, USA.