

# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

## ISO RECOMMENDATION R 1213

VOCABULARY OF TERMS RELATING TO SOLID MINERAL FUELS

PART III

TERMS RELATING TO COKE

1st EDITION

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## BRIEF HISTORY

The ISO Recommendation R 1213/III, *Vocabulary of terms relating to solid mineral fuels – Part III – Terms relating to coke*, was drawn up by Technical Committee ISO/TC 27, *Solid mineral fuels*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question led to the adoption of Draft ISO Recommendation No. 1883, which was circulated to all the ISO Member Bodies for enquiry in May 1970.

The Draft was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	India	Sweden
Belgium	Iran	Switzerland
Canada	Italy	Thailand
Chile	Netherlands	Turkey
Denmark	Poland	U.A.R.
France	Portugal	United Kingdom
Germany	South Africa, Rep. of	U.S.A.
Greece	Spain	

No Member Body opposed the approval of the Draft.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

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## VOCABULARY OF TERMS RELATING TO SOLID MINERAL FUELS

### PART III

#### TERMS RELATING TO COKE

#### INTRODUCTION

Part III of this ISO Recommendation consists of a systematic list of terms commonly employed in coke technology. Definitions are given for all terms whether or not the meaning is evident and an alphabetical index is also provided, with a numerical cross reference.

These terms and the layout are consistent as far as is possible with ISO Recommendation R 1213, *Vocabulary of terms relating to solid mineral fuels – Part I : Terms relating to coal preparation*; and ISO Recommendation R 1213, *Vocabulary of terms relating to solid mineral fuels – Part II : Terms relating to coal sampling and analysis*; reference should be made to those documents for general terms not defined in this ISO Recommendation.

#### 1. GENERAL

##### 1-01 coke

The solid residue of the distillation of coal at high temperature (above 800 °C).

##### 1-02 blast furnace coke

Coke specially prepared in coke ovens for use in blast furnaces; usually large coke of a narrow size range.

##### 1-03 foundry coke

Coke specially prepared in coke ovens for use in foundry cupola furnaces; usually large, very strong coke.

##### 1-04 gas coke

The solid residue of the distillation of coals of high volatile content at high temperature in gas-making retorts.

##### 1-05 low temperature coke

The solid residue of the low temperature distillation of coal (500 to 800 °C).

##### 1-06 large coke

The oversize removed before separating the largest size of graded coke.

##### 1-07 graded coke

Coke which has been screened between two specified sizes.

**1-08 breeze**

The undersize remaining after separating the smallest size of graded coke.

**1-09 milled coke**

Coke reduced in size by milling so that a high proportion will pass a fine sieve, for example a sieve of 200  $\mu\text{m}$  aperture size.

**1-10 small coke (U.S.A.)**

Coke specially prepared for use in blast furnaces by crushing to a top size of 63 mm or less.

**2. SAMPLING**

**2-01 sample**

A portion extracted from a coke consignment or a quantity of coke as being representative of it with regard to the characteristic to be investigated.

**2-02 gross sample**

All the increments collected from a consignment that are combined for reduction to a laboratory sample.

**2-03 part sample**

A portion of the sample obtained by sample division.

**2-04 laboratory sample**

The sample delivered to the laboratory for analysis or testing.

**2-05 increment**

The quantity taken by a single sampling operation.

**2-06 sample preparation**

The process of bringing the sample to the condition prescribed for a test or an analysis. It covers mixing, sample division, size reduction and sometimes drying, and may be performed in several stages.

**2-07 sample division**

The process in the course of sample preparation whereby part of the sample is retained whilst the remainder may be rejected.

**2-08 sample reduction**

The process of sample preparation whereby the particle size of a sample is reduced by crushing or grinding.

**3. SIZE ANALYSIS**

**3-01 size analysis  
sieve analysis (U.S.A.)**

The process of separating a sample into size fractions with defined limits.

**3-02 grading  
screening  
to screen**

The commercial operation of sorting coke between two screens, by causing one component to remain on the screen through which the other components pass.

**3-03 screen**

A surface for carrying out the commercial operation of screening.

**3-04 sieve**

Generally a "screen" of relatively small area particularly one intended for use in a laboratory for test purposes.

**3-05 oversize**

Material in a product of size greater than the upper reference size.

**3-06 undersize**

Material in a product of size smaller than the lower reference size.

**3-07 upper size  
top size (U.S.A.)**

The size corresponding to the 5 percentile on the cumulative size distribution curve of a product, i.e. the size above which 5 % of the product falls.

**3-08 lower size  
bottom size (U.S.A.)**

The size corresponding to the 95 percentile on the cumulative size distribution curve of a product, i.e. the size above which 95 % of the product falls.

**3-09 mean size**

The weighted average particle size of any sample or consignment.

**3-10 size range**

The interval between two specified sieve aperture dimensions.

**3-11 size fraction**

That part of the coke falling within a specified size range.

**3-12 hand shaking  
manual shaking (U.S.A.)**

The operation in which a sieve is held in the hands and is given a horizontal oscillatory motion with a throw of about 75 mm (3 in).

**3-13 hand placing**

The operation in which the sieve remains stationary and each particle of coke is handled; if a particle will, in some position and without forcing, pass through the sieve aperture it is considered as undersize.

**3-14 mechanical sieving**

The operation in which a set of sieves is agitated by mechanical means.

**4. PHYSICAL PROPERTIES**

**4-01 abrasion**

Particle size reduction caused by the rubbing of pieces of coke against each other or against a hard surface.

**4-02 breakage**

Particle size reduction resulting from impact.

**4-03 Micum index**

The percentage of the coke retained on a 40 mm test sieve (M.40) or passing a 10 mm test sieve (M.10) after being subjected to the Micum test. Other indices may be employed.

**4-04 shatter index**

The percentage of the coke retained on a sieve of stated aperture after being subjected to the shatter test.

**4-05 bulk density**

The mass per unit volume occupied by a collection of coke particles.

**4-06 relative density (true)**

The ratio of the mass of a sample of dry coke ground to pass a 0.2 mm sieve to the mass of the same volume of water.

**4-07 relative density (apparent)**

The ratio of the mass of a volume of dry coke of any size to the mass of an equal volume of water (at a specified temperature).

**4-08 porosity**

The volume proportion of voids within a piece of coke. The difference between the true relative density and the apparent relative density of a sample of coke expressed as a percentage of the true relative density.

**4-09 struck levelling**

A method of levelling the coke surface in a container when determining bulk density, whereby a straight edge is slid across the top of the container, any piece of coke which touches the straight edge being removed.

**5. CHEMICAL ANALYSIS****5-01 proximate analysis**

The analysis of coke, expressed in terms of moisture, volatile matter and ash.

**5-02 ultimate analysis**

The analysis of coke, expressed in terms of its carbon, hydrogen, nitrogen, sulphur and oxygen contents.

**5-03 gross calorific value**

The number of heat units measured as being liberated when unit mass of coke is burned in oxygen saturated with water vapour in a bomb under standardized conditions (as defined in ISO Recommendation R 1928, *Solid mineral fuels - Determination of gross calorific value by the calorimetric bomb method, and calculation of net calorific value*), the residual materials being taken as gaseous oxygen, carbon dioxide, sulphur dioxide, nitrogen, liquid water in equilibrium with its vapour and saturated with carbon dioxide, and ash.