

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 1213

VOCABULARY OF TERMS RELATING TO SOLID MINERAL FUELS

PART I

TERMS RELATING TO COAL PREPARATION

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BRIEF HISTORY

The ISO Recommendation R 1213, *Vocabulary of terms relating to solid mineral fuels – Part I : Terms relating to coal preparation*, 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. 1057 which was circulated to all the ISO Member Bodies for enquiry in February 1967. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Greece	South Africa, Rep. of
Austria	India	Spain
Belgium	Iran	Switzerland
Bulgaria	Israel	Thailand
Canada	Japan	Turkey
Chile	Korea, Rep. of	U.A.R.
Czechoslovakia	Netherlands	United Kingdom
Denmark	New Zealand	U.S.A.
France	Poland	U.S.S.R.
Germany	Romania	Yugoslavia

No Member Body opposed the approval of the Draft.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in June 1970, to accept it as an ISO RECOMMENDATION.

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VOCABULARY OF TERMS RELATING TO SOLID MINERAL FUELS

PART I

TERMS RELATING TO COAL PREPARATION

INTRODUCTION

Part I of this ISO Recommendation is a glossary consisting of a systematic list of terms commonly employed in coal preparation.

The arrangement of the glossary takes into account the distinction between *processes or operations* and the *methods or machines* for carrying them out.

Section 1 is devoted primarily to coal properties and the principal operations involved in coal preparation, and includes also general terms such as those relating to capacities and flowsheets.

Sections 2 to 5 cover the detailed terminology relating to sizing, cleaning, separation of solids from water or air, and size reduction.

Section 6 deals with the terms involved in interpreting or expressing the results of coal preparation operations.

Section 7 includes some miscellaneous terms.

Most of the sections are subdivided, and in each case the first subsection includes general terms and the remaining subsections cover groups of related terms. As far as possible this logical principle has been carried through into the arrangement of the terms themselves, which are also numbered for ease of reference. An alphabetical index is also provided, with a numerical cross-reference.

The use of the terms printed in italics is deprecated.

1. GENERAL

1.1 GENERAL COAL PREPARATION TERMS

1.1-01 coal preparation

Collectively, physical and mechanical processes applied to coal to make it suitable for a particular use.

1.1-02 raw feed coal

Coal supplied to a plant or machine, in which it undergoes some form of preparation.

1.1-03 coal cleaning

The treatment of coal to lower the mineral matter (ash) content.

1.1-04 middlings

A product of the preparation of coal which, by reason of its ash content, is too poor in quality for ready sale, but contains too much combustible matter to be discarded. Middlings may be reprocessed.

1.1-05 true middlings

bone coal

Comparatively high ash material so nearly homogeneous that its quality cannot readily be improved by crushing and cleaning.

1.1-06 refuse

Waste material in the raw coal which it is the object of cleaning to remove.

1.1-07 reject

The material extracted from the feed during cleaning, for retreatment or discard.

1.1-08 discard

dirt

stone

The material extracted from the raw coal and finally discarded.

1.1-09 'foreign' coal

Coal received at a preparation plant from a colliery other than that to which the plant is attached.

1.1-10 imported coal

Coal coming from a foreign country.

1.1-11 low grade coal

Combustible material which has only limited uses owing to undesirable characteristics (e.g. ash content or size).

1.1-12 segregation

The involuntary separation of particles of different physical characteristics.

1.1-13 inferior coal

Usually middlings obtained by hand-cleaning which, though of high ash, may be converted by crushing and washing into clean coal and discard.

1.1-14 float and sink analysis

The division of a sample into specific gravity fractions with defined limits, the proportions of the fractions being expressed as percentages of the total sample, commonly with an indication of the ash percentage (and other characteristics, if required) of each fraction.

1.1-15 size analysis

The division of a sample into size fractions with defined limits, the proportions of the fractions being expressed as percentages of the total sample, commonly with an indication of the ash percentage (and other characteristics, if required) of each fraction.

1.2 CLEANING CHARACTERISTICS

1.2-01 washability curve

Any curve obtained from the results of a float and sink analysis permitting the theoretical yield of floats or sinks to be read off. There are four main types of washability curve :

- The characteristic ash curve
- The cumulative float curve
- The cumulative sink curve
- The densimetric (relative density) curve

1.2-02 characteristic ash curve

The curve obtained from the results of a float and sink analysis showing, for any yield of floats/sinks, the ash content of the highest/lowest density fraction passing into these floats/sinks, the yield being plotted on the ordinate and the ash content on the abscissa.

1.2-03 cumulative curve

Any curve expressing the results of combining successive specific gravity fractions or size fractions.

1.2-04 cumulative float curve

The curve obtained from the results of a float and sink analysis by plotting the cumulative yield of floats at each relative density against the mean ash of the total floats at that density.

1.2-05 cumulative sink curve

The curve obtained from the results of a float and sink analysis by plotting the cumulative yield of sinks at each relative density against the mean ash of the total sinks at that density.

1.2-06 densimetric curve

relative density curve

Any curve obtained from the results of a float and sink analysis by plotting the yield of floats or sinks against the relative density.

1.2-07 performance curve

Any curve used to show the relation between properties of coal and results of a specific treatment.

1.2-08 actual performance curve

A performance curve showing the results actually obtained from a coal preparation treatment.

1.2-09 probable performance curve

A performance curve showing the expected results of a coal preparation treatment.

1.2-10 M curve

Mayer curve

A cumulative curve used in the first instance to express the washability of a coal, plotted on a vectorial diagram in which the projection of the vector on the abscissa represents the percentage of the product (coal) and the direction of the vector represents the percentage of a particular constituent of the product.

1.2-11 Ash/relative density curve

The curve obtained from the float and sink analysis by plotting the ash contents of successive fractions against relative density.

1.3 CAPACITY AND THROUGHPUT

1.3-01 nominal capacity

A notional figure expressed in mass per hour used in the title of the flowsheet and in general descriptions of the plant, applying to the plant as a whole and to the specific project under consideration. It may be taken as representing the approximate mass of feed expected to be supplied to the plant during the hour of greatest load.

1.3-02 operational capacities

Figures given on the flowsheet to indicate quantities passing various points in the plant per unit time (see 1.3-03, 1.3-04, 1.3-05), taking account of fluctuations in the rate of supply and composition (as to size and content of impurity).

1.3-03 design capacity

The rate of feed, defined by limits expressing the extent and duration of load variations, at which specific items of plant subject to a performance guarantee must operate continuously and give the guaranteed results on a particular quality of feed.

1.3-04 peak design capacity

A rate of feed in excess of the design capacity which specific items of plant will accept for short periods without necessarily fulfilling the performance guarantees given in respect of them.

1.3-05 mechanical maximum capacity

The highest rate of feed at which specific items of equipment, not subject to performance guarantees, will function on the type and quality of feed for which they are supplied.

1.3-06 feed

Material for treatment supplied to an appliance or plant.

1.3-07 basic flowsheet

A diagram of the various stages in the treatment of the raw coal in a preparation plant, usually either a process flowsheet or an equipment flowsheet.

1.3-08 process flowsheet

A basic flowsheet indicating the main operational steps within the plant, the movement of the various materials between the steps and the final products obtained, and often also the quantities of material with which the plant must be capable of dealing at various points.

1.3-09 equipment flowsheet

A diagram indicating, preferably by symbols, the units of plant to be used in the various operational steps carried out within a coal preparation plant.

1.3-10 materials flowsheet

A flowsheet principally concerned with solid materials.

1.3-11 liquids flowsheet

A flowsheet to indicate the flow of liquids throughout a series of operations.

1.3-12 weighted flowsheet***capacity flowsheet***

A materials flowsheet including a statement of the capacity in mass per hour at principal points in the plant.

2. SIZING**2.1 GENERAL****2.1-01 sizing**

Division of a material into products between nominal size limits.

2.1-02 mean size

The weighted average particle size of any sample, batch or consignment of particulate material.

2.1-03 nominal size

The limit or limits of particle size used to describe a product of a sizing operation.

2.1-04 oversize

Material in a product of size greater than the reference size; may be expressed as a percentage of the product.

2.1-05 undersize

Material in a product of size smaller than the reference size; may be expressed as a percentage of the product.

2.1-06 dust

Fine material removed dry from coal before its further treatment.

2.1-07 screen

A device for carrying out the operation of screening.

2.1-08 screening

The separation of solid materials of different sizes by causing one component to remain on a surface provided with apertures through which the other component passes.

2.1-09 dry screening

The screening of solid materials of different sizes without the aid of water.

2.1-10 wet screening

The screening of solid materials of different sizes with the aid of water, normally in the form of a spray.

2.1-11 de-sliming

The removal of slimes from coal or a mixture of coal and water, however accomplished.

2.1-12 fines removal

The removal of fine particles from a feed material, by either wet or dry methods, to facilitate treatment or utilization of the remainder.

2.1-13 de-slurrying

Fines removal by wet methods.

2.1-14 de-dusting

Fines removal by dry methods.

2.2 SCREENING

2.2-01 overflow, screen

That portion of the feed material discharged from the screen deck without having passed through the apertures.

2.2-02 undersize

In an overflow. Particles in a screen overflow which are smaller than the nominal dimensions of the screen apertures.

2.2-03 underflow, screen

That portion of the feed material which has passed through the apertures in a screen deck.

2.2-04 oversize

In an underflow. Particles in a screen underflow which are larger than the nominal dimension of the screen apertures.

2.2-05 misplaced material

Undersize contained in the overflow, or oversize contained in the underflow.

2.2-06 near-mesh material

Material approximating in size to the mesh aperture.

2.2-07 mesh aperture

The dimension or dimensions of the aperture in a screen deck, usually with a qualification as to the shape of aperture, e.g. "round-hole", "square-mesh", "long-slot".

2.2-08 nominal screen size

A notional size at which it is intended to divide a feed by a screening operation.

2.2-09 nominal area

Of a screen. The total area of the screen deck exposed to the flow of the material feed.

2.2-10 useful area

working area

Of a screen. The nominal area, less any area occupied by fixings or supports which obstruct the passage of material over or through the screen deck.

2.2-11 effective screening area

open area

Total area of the apertures expressed as a percentage of the useful area of a screen.

2.3 PARTS OF SCREENS

2.3-01 sieve

Generally. A screen of relatively small area.

Particularly. A screen used in the laboratory for test purposes.

2.3-02 screen deck

A surface provided with apertures of specified size for carrying out the operation of screening.

2.3-03 screen plate

A plate provided with apertures of specified size for use as a screen deck.

2.3-04 screen cloth

A woven tissue suitable for use in a screen deck.

2.3-05 wedge-wire deck

wedge-wire sieve

A screen deck comprising wires of wedge-shaped cross-section spaced from each other at a fixed dimension; the underflow thus passes through an aperture of increasing cross-section.

2.3-06 protection screen deck

A screen plate with large apertures mounted over the screening deck in order to reduce the load and wear thereon.

2.4 SCREENS ACCORDING TO PURPOSE

2.4-01 raw coal screen

A screen used for dividing run-of-mine coal into two or more sizes for further treatment or disposal; usually employed to remove the largest pieces for crushing and re-addition to the run-of-mine coal.

2.4-02 primary screen

A screen used to divide coal (usually raw coal) into sizes more suitable for the subsequent cleaning of some or all of them.

2.4-03 de-watering screen

A screen used for the separation of water from solids.

2.4-04 de-sliming screen

A screen used for the removal of slimes from larger particles, usually with the aid of water sprays.

2.4-05 slurry screen

A screen to recover a granular product from circulating water in a washer, usually after a preliminary concentration of the solids and with or without the use of water sprays.