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Solid mineral fuels — Vocabulary —

Part 1 :
Terms relating to coal preparation

ADDENDUM 1

*Combustibles minéraux solides — Vocabulaire —
Partie 1 : Termes relatifs à la préparation du charbon
ADDITIF 1*



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Foreword

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Addendum 1 to International Standard ISO 1213-1 : 1982 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*.

Annex A of this Addendum is for information only.

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Introduction

Addendum 1 to ISO 1213-1 defines terms for blending and homogenization and automatic control when related to coal preparation.

Clause 10 covers blending and homogenization.

Clause 11 covers automatic control.

The latter of necessity covers only a limited selection of terms. A list of other International Standards which together provide a more comprehensive set of terms is given in annex A.

To avoid confusion with ISO 1213-1 : 1982, the terms have been allocated to clauses 10 and 11 and a separate alphabetical index is given.

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Solid mineral fuels — Vocabulary —

Part 1 : Terms relating to coal preparation

ADDENDUM 1

10 Blending and homogenization terms

10.1.01 bunker blending; bin blending: A method of blending whereby the components are stored separately in bunkers or bins which are discharged simultaneously in pre-determined and controlled quantities.

10.1.02 feeder: A mechanical device for delivering material at a controlled rate.

10.1.03 heterogeneity: The state of a material when particles with certain characteristics are distributed unevenly throughout it.

10.1.04 homogeneity: The state of a material when particles with certain characteristics are distributed evenly throughout it.

10.1.05 homogenization: The thorough mixing of a material to obtain a product of relatively constant characteristics.

10.1.06 mixing: The combination of two or more materials of different characteristics in proportions which need not be predetermined or controlled.

10.1.07 mixer: A device or process which achieves mixing.

10.1.08 uniformity: A material is said to be uniform with regard to a certain characteristic when all of the particles have identical values for that characteristic.

10.1.09 non-uniformity: A material is said to be non-uniform with regard to a certain characteristic if the particles have different values for that characteristic.

10.1.10 reclaimers: A mechanical device which recovers material from a stockpile.

10.1.11 stacker: A mechanical device used to form a stockpile.

10.1.12 stockpile: A formed mass of material maintained in storage on the ground. A stockpile may have two parts:

- a) **active or live:** That portion of a stockpile which can be reclaimed using installed equipment.
- b) **dead or inactive:** That portion of a stockpile which cannot be reclaimed using installed equipment.

10.1.13 stockpiling: The action of forming a stockpile.

NOTE — There are several methods of stockpiling, for example:

a) **chevron:** The method of forming a longitudinal stockpile of triangular cross-section whereby successive components are evenly stacked along the central axis of the stockpile.

b) **cone-ply:** The method of forming a longitudinal stockpile of triangular cross-section whereby an initial conical stockpile is extended linearly by adding successive components to one conical face.

c) **layered:** The method of forming a stockpile whereby successive components are added in layer form. When the stockpile is formed for blending, the successive layers are distributed over the area of the stockpile.

d) **wind-row:** The method of forming a longitudinal stockpile whereby successive components are stacked in adjoining parallel longitudinal stockpiles which progressively form the overall stockpile.

10.1.14 mass flow (in bunkers): When all the contents of a bunker are in motion, such that there is substantially uniform velocity of flow across the whole cross-section of the material.

10.1.15 core flow; funnel flow: Flow of material confined to a column immediately surrounding the vertical axis through the outlet. The material on the surface slides in towards the moving column.

11 Automatic control terms

11.1 General

11.1.01 control system: An arrangement of elements (amplifiers, converters, human operators etc.) interconnected and interacting in such a way as to maintain or to affect in a prescribed manner some condition of a body, process or machine which forms part of the system.

11.1.02 automatic control:

(1) The provision of equipment to enable plant and machinery to perform some or all of its operations without the intervention of an operator or attendant. (Not to be confused with *remote control* which itself may or may not include provision for automatic control.)

(2) The process of comparing measured values with a reference value (set point) and correcting deviations from the reference value by automatic means.

11.1.03 manual control: The operation of a plant in response to command actions taken by an operator as opposed to those taken automatically.

11.1.04 central control: The operation of a number of control functions on a plant from one central point.

11.1.05 local control: Operator control of a plant from a position adjacent to the motive power.

11.1.06 remote indications: The receiving and display of data at a point remote from the process or machine.

11.1.07 remote control: The initiation of control operations for a process or machine at a point remote from the motive power.

11.1.08 process control system: A control system, the purpose of which is to control some physical quantity or condition of a process.

11.1.09 adaptive control system: A system in which automatic means are used to change the system parameters in a way intended to achieve the best possible performance of the system at all times.

11.1.10 management information system; MIS: A computer system designed to acquire and retain information about the performance of operations and equipment, with facilities for retrieving that information on demand.

11.1.11 monitor (to): To measure or record continuously or regularly.

11.1.12 data: Representation of facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing by human or automatic means.

11.1.13 sequence control: The starting or stopping of a series of related events in a prescribed order.

11.1.14 alarm: A visual or audible signal to attract human attention to a condition or state.

11.1.15 fail safe: A system concept in which the failure of any component or sub-system will not cause a hazard.

11.2 Control equipment

11.2.01 sensor: A detector or transducer normally used for measuring quantities or detecting occurrences. Analogue transducers are sometimes called sensors.

11.2.02 detector: A device to indicate a specific occurrence.

11.2.03 transducer: A device which detects and measures some quantity in a system (e.g. pressure, current, voltage) and converts it into a signal of related or proportional units.

11.2.04 flowmeter: A device to measure the rate of flow (volume/unit time), or the total volume during a given period.

11.2.05 controller: A piece of equipment which combines the function of at least the input elements, the comparing elements and the amplifying and signal processing elements, for a process control system.

11.2.06 actuator: A motor with limited rotary or rectilinear motion.

11.2.07 servo-mechanism: A system using feedback in which one or more of the signals in the system represents mechanical motion.

11.2.08 amplifier: A device for controlling power from a source so that more is available at the output than is supplied at the input. The source of power may be electrical, mechanical, hydraulic, pneumatic, etc.

11.2.09 converter: A device which receives analogue signals in one form, e.g. pneumatic, and produces an equivalent output in another form, e.g. electronic. Usually qualified by naming the types of signals received and produced.

11.2.10 ash monitor: A device which analyses coal quality in terms of ash percentage and produces a signal representing ash percentage.

11.2.11 bulk density meter: A device for monitoring the bulk density of a mineral to provide an indication of quality.

11.2.12 moisture meter: A device which analyses coal quality in terms of moisture percentage and produces a signal representing moisture percentage.

11.2.13 density meter: A device for monitoring the relative density of a suspension.

11.2.14 proximity switch: A device for detecting the presence of another body without physical contact.

11.2.15 pre-start warning: An audible alarm that is caused to sound before machinery (e.g. a conveyor) is started.

11.2.16 mimic diagram: A visual presentation of the state of a plant or part of a plant.

11.2.17 printer: A device for producing printouts of text and/or graphics.

11.2.18 printout: The document or set of messages produced by a printer.

11.2.19 visual display unit; VDU: A device for visual presentation of data (e.g. from a computer), generally employing a cathode ray tube.

11.2.20 status display: A presentation or report by visual means of the state of operation at a particular time.

11.2.21 static display: A presentation or report by visual means in which the values or information display remain steady and are not updated to represent the current information.

11.2.22 dynamic display: A display by visual means which is effectively continuously updated so as to present up-to-date information at all times.

11.2.23 microcomputer; microprocessor: A small computer based on either a single chip of semi-conductor or a small number of chips.

11.2.24 digital computer: Machine which carries out arithmetic and logical operations on data represented in a binary digital format. The control of the operations is by means of a program of instructions (also in binary digital format) stored within the machine.

11.2.25 analogue computer: A computer which handles information expressed in an analogue form.

11.2.26 hybrid computer: A computer formed from a combination of an analogue and a digital computer.

11.2.27 front end processor: A small computer used to organize input/output functions for a larger machine.

11.2.28 programmed controller: A controller incorporating a sequence of predetermined commands to a control system as a function either of time or of some other variable. The controller will only perform the function(s) for which it was designed.

NOTE — Programmable Logic Controller (PLC) is a device for performing this task.

11.2.29 programmable controller: A controller, the function of which is determined by codes or instructions programmed into it by the user, the application program(s) being stored in an accessible memory.

11.2.30 dedicated controller: A controller which is responsible for the control of a specific section of a plant.

11.2.31 limit switch: A switch operated by movement of a machine or apparatus beyond a set limit; frequently used to cut off power to the machine or to reverse its motion.

11.2.32 limit transducer: A transducer which is used, with a control system, to apply a preset limit to any operation or movement.

11.2.33 lock-out circuit: A facility to allow a machine to be rendered inoperative by local or remote switches or contacts, e.g. during maintenance work.

11.3 Control terminology

11.3.01 open loop control (system): A system of control using feedback but not using any automatic means of determining deviations from the target value. The feedback signal or signals are normally displayed visually, deviations being corrected manually.

11.3.02 closed loop control (system): A system of (automatic) control in which the operation being performed is measured and compared with the desired performance. The deviation is used to activate the control element in such a manner as to tend to reduce the deviation to zero. An important feature of such systems is the way in which the deviation is modified before being fed back to the control element. Closed loop controllers may have proportional, integral or derivative action or a combination of these.

11.3.03 ratio control (system): A control system which maintains two or more physical quantities or conditions at a predetermined ratio.

11.3.04 controlled device: A body, process or machine, a particular condition of which is controlled by a system.

11.3.05 controlled condition: The physical quantity or condition of the controlled body, process or machine which it is the purpose of the system to control.

11.3.06 desired value: The independently set reference in a control system.

11.3.07 input signal: A received signal which initiates action.

11.3.08 command signal: The quantity or signal which is set or varied by some device or human agent external to and independent of the control system and which is intended to determine the value of the controlled condition.

11.3.09 set point: The desired value at which the process or machine is to be controlled.

11.3.10 deviation: The difference between the measured value of the controlled condition and the command signal.

11.3.11 error signal: A signal in an automatic control system which represents the discrepancy between the desired and the actual performance and which is used to apply the necessary corrections.

11.3.12 control signal: A signal passed to the equipment governed by a control system in order to apply a change or correction.

11.3.13 control action: A term describing the relationship between the input signal and the output signal of a control element.

11.3.14 proportional action: The action of a control element whose output signal is proportional to its input signal.

11.3.15 derivative action: The change of output signal proportional to the rate of change of the deviation.

11.3.16 integral action: The action of a control element whose output signal changes at a rate which is proportional to the change of input with respect to time.

11.3.17 feedback: The transmission of a signal from one stage of the system to a preceding stage to effect correction and/or control.

11.3.18 stability: The property of a control system (or indeed any mechanical or electrical system) to return to a state of equilibrium after a disturbance.

11.3.19 damping: The progressive reduction or suppression of the oscillation of a system.

11.3.20 hunting: A sustained oscillation of the output quantity about the required value.

11.3.21 calibration: The graduation, correction or adjustment of the scale of a measuring instrument to a standard.

11.3.22 interface: The connection between two distinct parts of a system. The interface may be physical as between a transducer and transmission system, or imaginary as between one computer program and the data area.

11.3.23 man-machine interface: The operator's control panel and all that is associated with communication between the operator and a device which either monitors or controls a process.

11.3.24 hardware: The mechanical, magnetic, electrical and electronic devices or components which comprise a computer system.

11.3.25 software: The collection of programs or routines associated with a computer. Commonly any aspect of computer operation which cannot be classed as hardware.

11.3.26 hardware (to): To connect solely by relays, switches and wires.

11.3.27 machine language: The binary code representation of the instructions executed by a computer.

11.3.28 program: A sequential set of instructions that specifies, in a manner capable of interpretation by a computer, the set of actions to be taken or not taken.

11.3.29 pass: The complete process of reading a set of information; usually relevant when the same set of information is to be read more than once in the same sequence.

11.3.30 diagnostic: A program run to determine (hardware) faults in a computer system.

11.3.31 word: A complete element of computer memory normally treated as a unit.

11.3.32 memory: Any device associated with a computer which is used to store information such as programs or data, in digital form.

11.3.33 configuration: The specific set of equipment supplied as part of the system. Particularly applied to the size and number of storage and input/output devices.

Annex A (informative)

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