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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**The norm of the energy consumption per unit product of coal
underground mining**

煤炭井工开采单位产品能源消耗限额

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Foreword Foreword

The foreword states that 4.1 and 4.2 of this standard are mandatory and that the remaining provisions are recommended, and that the standard was drafted according to the rules of GB/T 1.1-2009.

The standard was proposed by the National Development and Reform Commission and is under the joint administration of the National Technical Committee on Energy Fundamentals and Management of Standardization (SAC/TC 20) and the National Technical Committee on Coal Standardization (SAC/TC 42).

1 Scope

This standard lays down the technical requirements, the statistical boundary, the calculation method and the energy-saving management and measures for the energy consumption per unit product of coal underground mining (hereinafter referred to as energy consumption).

This standard applies to the calculation and the assessment of the energy consumption per

unit product of coal underground mining enterprises, and to the control of the energy consumption of newly built enterprises.

2 Normative references

The documents listed below are indispensable for the application of this document. For dated references, only the edition cited applies; for undated references, the latest edition, including all amendments, applies.

GB 17167 General principle for equipping and managing of the measuring instrument of energy in organization of energy using; GB/T 28398-2012 Specification of statistics on energy consumption of coal enterprise; MT/T 1000 Methods and judging rules for energy-saving monitoring of in-service industrial boilers in coal mines; MT/T 1001 Methods and judging rules for energy-saving monitoring of in-service hoists in coal mines; MT/T 1002 Methods and judging rules for energy-saving monitoring of in-service main drainage systems in coal mines; MT/T 1070 Methods and judging rules for energy-saving monitoring of in-service main belt conveyors in coal mines; MT/T 1071 Methods and judging rules for energy-saving monitoring of in-service main ventilation fan installations in coal mines.

3 Terms and definitions

3.1 Energy consumption per unit product of coal underground mining, printed together with a second admitted Chinese term meaning total energy consumption per tonne of raw coal produced by underground mining. The ratio of the energy consumption of coal production in the statistical period to the raw coal output of the mine. A note states that this standard uses the converted value of the energy consumption when calculating the energy consumption per unit product.

3.2 Output of raw coal in mine. The sum, within the statistical period, of the winning output, the tunnelling output and the other output of the mine.

3.3 Winning output of raw coal in mine. The quantity of coal extracted from all the winning faces of a producing mine within the statistical period.

3.4 Tunnelling output of raw coal in mine. The quantity of coal produced within the statistical period from the production drivages borne by the production cost of a producing mine. It does not include coal produced by drivage carried out with reconstruction funds and coal produced by shaft and roadway maintenance work.

3.5 Other output of raw coal in mine. The output of a producing mine within the statistical period other than the winning and tunnelling output. It mainly includes coal produced by shaft and roadway maintenance, coal produced by re-mining in abandoned or worked-out districts, recovered coal brought up to standard after treatment of substandard quality, coal produced in scientific research trial mining, unbranded coal brought out of the shaft, coal slime from hydraulic sand stowing or from the cleaning of the settling ponds of hydraulic

mining, the tonnage gained or lost at stocktaking, and the mine output paid for out of production cost and not counted in capacity.

3.6 Energy consumption of coal production. The sum, converted to standard coal, of the main production energy consumption and the auxiliary production energy consumption within the statistical period. A note refers to 3.6 of GB/T 28398-2012.

3.7 Main production energy consumption. The sum, converted to standard coal, of the various forms of energy consumed directly for coal mining within the statistical period. A note refers to 3.7 of GB/T 28398-2012.

3.8 Auxiliary production energy consumption. The sum, converted to standard coal, of the various forms of energy consumed within the statistical period by the auxiliary production systems that support the main production. A note refers to 3.8 of GB/T 28398-2012.

4 Technical requirements

4.1 When the equivalent value is used as the standard coal conversion factor for electricity, the limit value of the energy consumption per unit product of existing coal underground mining enterprises shall be not greater than 11.8 kgce/t.

4.2 When the equivalent value is used as the standard coal conversion factor for electricity, the access value of the energy consumption per unit product of newly built coal underground mining enterprises shall be not greater than 7.0 kgce/t.

4.3 When the equivalent value is used as the standard coal conversion factor for electricity, coal underground mining enterprises shall reach, through energy-saving technical retrofitting and reinforced energy-saving management, an advanced value of the energy consumption per unit product of not greater than 3.0 kgce/t.

5 Statistical boundary of the energy consumption and calculation method

5.1.1 The statistical boundary covers the primary energy, the secondary energy and the losses consumed by the main production system and by the auxiliary production system. Reference is made to clause 4 of GB/T 28398-2012, Classification of energy consumption.

5.1.2 The calorific values of the various forms of energy are counted in standard coal. The equivalent calorific value of each form of energy shall be the value measured by the enterprise within the statistical period. Where there are no conditions for measurement, the reference standard coal conversion factors of the various forms of energy given in annex A shall be used.

5.2.1 The energy consumption per unit product of a single-mine coal underground mining enterprise is calculated with formula (1). The formula is printed as a ratio and is not

reproduced here. Its legend is: e with subscript jg , energy consumption per unit product of coal underground mining, in kilograms of standard coal per tonne of raw coal (kgce/t); E with subscript jg , energy consumption of coal production, in kilograms of standard coal (kgce); M , raw coal output of the mine, in tonnes (t); k_1 , conversion factor for mining conditions and process, see annex B; k_2 , conversion factor for haulage distance, see annex C; k_3 , conversion factor for the gas grade of the mine, see annex D; k_4 , conversion factor for the water inflow of the mine, see annex E; k_5 , conversion factor for the production capacity of the single shaft, see annex F.

5.2.2 The energy consumption per unit product of a multi-mine coal underground mining enterprise is calculated with formula (2), printed as the ratio of two summations and not reproduced here. Its legend is: e with subscripts i and jg , energy consumption per unit product of the i -th mine of the multi-mine enterprise, in kilograms of standard coal per tonne of raw coal (kgce/t); M with subscript i , raw coal output of the i -th mine of the multi-mine enterprise, in tonnes (t); n , number of mines of the multi-mine coal underground mining enterprise.

6 Energy-saving management and measures

6.1.1 The enterprise shall assess the energy consumption of coal production periodically, and shall break the assessment indicators down to the individual departments at the working level, establishing a system of responsibility for energy use.

6.1.2 The enterprise shall establish an energy consumption statistics system as required, shall establish documentary records of the energy consumption calculations and of the assessment results, and shall keep those documents under control.

6.1.3 The enterprise shall equip itself with energy measuring instruments according to the requirements of GB 17167 and shall establish a system for managing energy metering.

6.2.1.1 The enterprise shall select large fixed equipment for coal mines and general-purpose equipment that reaches the state of economical operation.

6.2.1.2 The enterprise shall reinforce the maintenance and repair of equipment, raise the load factor of the equipment, match the equipment used in production reasonably and run it economically, keep the equipment in a high-efficiency low-consumption operating state, and reinforce the maintenance and management of the various pipe networks so as to prevent running, spouting, dripping and leaking.

6.2.2 The enterprise shall monitor the main energy-consuming equipment periodically; the monitoring methods and the judging rules shall follow MT/T 1000, MT/T 1001, MT/T 1002, MT/T 1070 and MT/T 1071.

6.2.3 The enterprise shall actively promote and apply the following energy-saving technologies: developing and using new energy-saving technologies, processes, equipment