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

GB/T 5447-2014

Determination of caking index of bituminous coal

烟煤黏结指数测定方法

(English Translation)

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1 Application Scope

This Standard specifies the method summary, reagent and material, apparatus, coal sample, test procedure, calculation of result, precision of test method and test report for the determination of caking index for bituminous coal.

This Standard applies to bituminous coal.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 474, Method for Preparation of Coal Sample

GB/T 483, General Rules for Analytical and Testing Methods of Coal

GB/T 14181, Specifications of Anthracite for Determination of Caking Index of Bituminous Coal

3 Summary of Test Method

A portion of prepared sample of coal of limited mass range and the standard anthracite are mixed under defined conditions, and the mixture is carbonized rapidly. The crucible coke thus obtained is tested for strength in a drum conforming to certain specifications.

Then the caking index (GR, I) is calculated to indicate the caking power of coal sample.

4.1 Standard anthracite for the determination of caking index (hereinafter referred to

standard anthracite): as specified in GB/T 14181.

4.2 Dryer: containing allochroic silicagel.

4.3 Tongs.

not exceed 5 days. If it exceeds 5 days, the time of sample preparation and testing shall be stated in the report.

7 Test Procedure

7.1

First weigh 5.00 g of standard anthracite and then weigh 1.00 g of coal sample to place into a crucible, both weighed to an accuracy of 0.001 g.

7.2

Mix the mixture in the crucible carefully for 2 min with the stirrer. The method of stirring: tilt the crucible about 45 degrees left and right, rotate anticlockwise with the rotating speed about 15 r/min and make the stirrer rotate about the same tilting angle clockwise with the rotating speed 150 r/min. The ring of the stirrer is in contact with the arc part of the crucible wall connecting with the bottom during stirring. After about 15 seconds to 2 min, continue to stir while rotate the crucible and stirrer to the vertical position; at about 2 min, finish stirring. Avoid coal sample splashing during stirring.

7.3

After stirring, use the brush to brush the coal powder on the crucible wall gently, use the stirrer to level off the mixture and make the level along the crucible wall 1 mm to 2 mm lower to make the coal sample surface on the same plane after steel weight compresses the mixture.

7.4

Use the tongs to clamp the steel weight to place at the centre of the crucible, place it under the press, put down the pressure lever and apply pressure for 30 s.

7.5

After applying pressure, remain the steel weight on the mixture and cover it with the lid. Care shall be taken to that the crucible with sample shall be handled with care during the whole process above mentioned to prevent impact and vibration.

7.6

Raise the temperature of the furnace to 850 °C. Open the furnace door, insert the crucible holder with rapidly crucible to the uniform-temperature zone, close the furnace door immediately, start timing and heat it for an accurate time of 15 min. After the crucible holder and crucible are inserted, it is required that the furnace temperature

850 °C ± 10 °C is regained within 6 min and 850 °C ± 10 °C is maintained hereafter.

The heating time includes the temperature regaining time.

7.7

Remove the crucible from the furnace and allow it to cool to room temperature. If the drum test is not carried out immediately, transfer the crucible to the dryer.

7.8

Remove the weight from the crucible; brush back into the crucible any particles of coke adhering to the weight. Weigh the total mass of coke. Transfer it to the drum and carry out the drum test (250 r, 5 min for each test). After the first drum test, sieve the coke with 1 mm round-hole sieve and weigh the substance remaining on the sieve;

then transfer the coke remaining on the sieve to the drum for the second drum test, conduct sieving and weighing and calculate the result in accordance with Equation (1).

7.9

When the caking index measured is less than 18, change the proportion of anthracite and coal sample to 3:3, i.e. weigh 3.00 g of standard anthracite and 3.00 g

Appendix B (Informative)

Technical Differences between This Standard and ISO 15585:2006 and

Their Reasons

Table B.1 gives the list of the technical differences between this Standard and ISO 15585:2006 and their reasons.

Table B.1 - Technical Differences between This Standard and ISO 15585:2006 and Their Reasons

Article number of this Standard

Technical difference Reason

Modifies the application scope of the ISO standard from "random reflectance of vitrinite within the range 0.60% to 1.80%"

For adaptation to the classification of coal in China

4.1

Specifies that anthracite shall meet the requirements of GB/T 14181

Based on the requirements of Chinese

Standards

5.6

Gives the materials and dimensions of the crucible

For the convenience of test and better operability

6.2

Modifies the time between preparation of the sample and carrying out the test not more than "7 days" to "5 days"

In accordance with the relevant requirements of Chinese standards

7.2

Gives the method for stirring the mixture in the crucible

In order to standardize the operation and ensure the repeatability of results

_____ END _____

Chinese Standards

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