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

GB/T 4632-2008

**Determination of moisture-holding capacity of coal
(English Translation)**

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Foreword

This standard, through revising, ADOPT the international standard ISO 1018.

1975 "Hard coal - Determination of moisture-holding capacity" (in English).

This standard is re-drafted based on ISO 1018. 1975. Taking into account of China's national conditions, when using ISO 1018.1975, some modifications are made in this standard. The relevant technical differences had been incorporated into the main text, and meanwhile a single vertical line is used at the margin adjacent to the relevant clauses to identify such differences. In Appendix A, it provides the comparison list between the clause numbers of this standard and the clause numbers of ISO 1018.1975; In Appendix B, it provides these technical differences and their causes.

This standard replaces GB 4632-1997 "Determination of moisture-holding capacity of coal". As compared with GB 4632-1997, the main changes of this standard are as follows.

- In the "Normative references", ADD the GB/T 483 (Chapter 2 of this version);

- In the "Method summary", HIGHLIGHT the concept of "nitrogen charging normal pressure" (Chapter 3 of this version);

- ADD the chapter of "Test reports" (Chapter 10 of this version).

The Appendix A and Appendix B of this standard are informative appendices.

The standard was proposed by China Coal Industry Association.

This standard shall be under the jurisdiction of the National Standardization Technical Committee of Coal.

This drafting organization of this standard. CCRI Coal Analysis Laboratory, Inner Mongolia Coal Geology Institute.

1 Scope

This standard specifies the method summary, reagents and materials, instruments and equipment, coal sample collection and preparation, measurement steps, result calculation, and method precision of using nitrogen charging normal pressure method to measure the maximum inherent moisture of coal.

This standard applies to lignite, bituminous coal and anthracite.

2 Normative references

The provisions in following documents become the provisions of this standard through reference in this standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this standard; however, parties who reach an agreement based on this standard are encouraged to study if the latest versions of these documents are applicable.

For undated references, the latest edition of the referenced document applies.

GB/T 212 Proximate analysis of coal (GB/T 212-2008, ISO 11722.1999, ISO 1171.1997, ISO 562.1998, NEQ)

GB 474 Method for preparation of coal sample (GB 474-2008, ISO 18283.2006, Hard coal and coke - Manual sampling, MOD)

GB/T 483 General rules for analytical and testing methods of coal

GB/T 6003.1 Test sieves of metal wire cloth

GB/T 16496 Chemical reagent - Potassium sulfate

3 Method summary

After the coal sample is saturated with water, USE permanent wet paper to remove most of external water; at the temperature of 30°C, relative humidity 96%, AND nitrogen charging normal pressure, MAKE it reach to humidity balance; then MAKE it subject to drying in the nitrogen stream at the

11 - Temperature controller, which is composed of mercury contact

thermometer, transistor relay, AND solenoid valve;

15 - Weighing bottle holder;

16, 17 - Nitrogen inlet and outlet.

Figure 1 Nitrogen charging normal pressure method maximum inherent moisture meter

5.3 Nitrogen oven. it is allowed to choose any one type from the following two types.

5.3.1 Small space nitrogen oven. the oven is tight, having relatively smaller free space; it has nitrogen inlet and outlet as well as automatic temperature control device, which can maintain the temperature at 105°C ~ 110°C.

5.3.2 Normal nitrogen oven (Figure 2). it can control the temperature at 105°C ~ 110°C; in the thermostatic region is installed a metal cartridge in the size of 200mm x 100mm x 60mm. In the cartridge, there is one tray which can accommodate 6 weighing bottles. At one end of the cartridge is provided with a nitrogen inlet, which is connected through a silicone tube to the nitrogen cylinder, and the entrance is covered by several layers of metal mesh, so as to disperse the gas; the other end has a small door, so as to allow the free access of the tray, being used as nitrogen outlet.

soaked with water, AND stored in a sealed container for use). USE double layer filter paper to wrap it; USE hand to forcefully grip it; PLACE it at the upper sieve in the humidity chamber (5.12). Inside the chamber is placed two sieves, the upper sieve aperture is 0.60mm AND the lower sieve aperture is 0.45mm, AND on each sieve is placed some permanent wet paper (5.11). Then MIX the coal sample and permanent wet paper, and MAKE the coal mass scatter and fall onto the below sieve. REPEAT this operation, until the coal sample falls onto the bottom Dowling paper. TAKE 1g ~ 2g of coal sample from it; PLACE it into a known mass weighting bottle; PAVE it level; PLACE it in the humidifier.

7.3 Humidity regulation

PLACE the weighing bottle on the weighing bottle holder in the humidifier; USE the positioning pin to position the weighing bottle (just below the gas circulator bell mouth); OPEN the weighing bottle lid. COVER the humidifier; MAKE it airtight; START the propeller, so as to make the nitrogen circulate for 10min at the flow rate of 1L/min; then CLOSE the nitrogen inlet. RECORD the humidification start time; when the coal sample basically reaches to humidity balance (bituminous coal and anthracite generally requires 24h, lignite requires 24h ~ 48h), OPEN the humidifier cover; immediately COVER tightly the weighing bottle; TAKE it out; WIPE the weighing bottle clean; LET it settle at room temperature for 5min; then WEIGH it, accurate to 0.0002g. Afterwards, CONDUCT weighing once every 6 hours, until the difference of the consecutive two mass weighed does not exceed 0.3% of the sample mass, which indicates that it reaches to humidity balance. To facilitate test, it shall conduct tests of same coal types simultaneously.

7.4.1 Use of small space nitrogen oven

FOLLOW the nitrogen drying method in GB/T 212 to conduct moisture measurement for the coal sample after permanent wetting.