GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 73.040

D 21

GB/T 219-2008

Replacing GB/T 219-1996, GB/T 18856.10-2002

Determination of fusibility of coal ash

煤灰熔融性的测定方法

(ISO 540:1995, Solid mineral fuels - Determination of fusibility of ash - High-temperature tube method, MOD)

Issued on: July 29, 2008 **Implemented on: May 01, 2009**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine;

Standardization Administration of PRC.

Table of Contents

Foreword

This standard modifies and adopts ISO 540:1995 (E) "Solid mineral fuels - Determination of fusibility of ash - High-temperature tube method" (English version).

This standard was redrafted according to ISO 540:1995 (E). This Appendix A lists the comparison of the clause number between this standard and the clause number of ISO 540:1995.

Considering the national conditions of our country, when adopting ISO 540:1995 (E), this standard has made some modifications. The relevant technical differences have been compiled into the main text and marked with a single vertical line in the margins of the clauses they involve. A list of these technical differences and their reasons is given in Appendix B for reference.

For ease of use, it also made some editorial changes of ISO 540:1995(E).

This standard replaces GB/T 219-1996 "Determination of fusibility of coal ash", meanwhile incorporate the contents of GB/T 18856.10-2002 "Test methods for quality of coal water mixture - Part 10: Determination for fusibility of ash of coal water mixture" into this standard.

Compared with GB/T 219-1996, the main changes of this standard are as follows:

- ADD coal slurry to the scope of application;
- ADD the provision for calibrating thermocouples and pyrometers (clause 6.2 of this edition);
- CORRECT the printing error of the gas flow in the 1996 edition (see 7.1.1.1);
- ADD the provisions on the use of the automatic measuring instrument (clause 9.3 of this edition).

Appendix A and Appendix B of this standard are informative appendixes.

This standard was proposed by the China Coal Industry Association.

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

Drafting organization of this standard: Coal Analysis Laboratory of China Coal Research Institute.

The main drafters of this standard: Han Liting, Duan Yunlong, Wang Wenliang.

Determination of fusibility of coal ash

1 Scope

This standard specifies the definition, method summary, reagents and materials, instruments and equipment, test conditions, measurement procedures and precision of the determination of fusibility of coal ash.

This standard applies to lignite, bituminous coal, anthracite and coal slurry.

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)

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1

Deformation temperature

DT

The temperature at which the tip or edge of the ash cone begins to round or bend (Figure 1, DT).

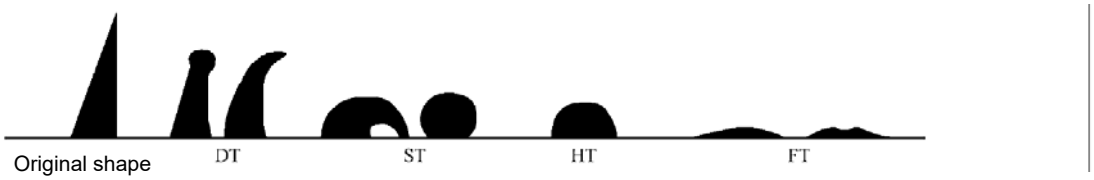

Figure 1 -- Schematic diagram of melting characteristics of ash cone

Note: If the tip of the ash cone remains the original shape, the cone shrinkage and

a small sharp knife to carefully push the ash cone in the mold onto the porcelain or glass plate. Dry it in the air or at 60 °C for later use.

Note: Except for the dextrin solution, it may use water or the 100 g/L soluble starch (5.11) solution for the plastic of coal ash.

9 Determination procedure

9.1 Determination in a weak reducing atmosphere

Use dextrin solution (5.1) to adjust a small amount of magnesium oxide (5.2) into a paste. Use it to fix the ash cone in the triangle pit of the ash cone pallet (5.8). Make the ash cone perpendicular to the side of the bottom and the surface of the pallet.

Place the pallet with ash cone on the corundum boat (5.7). If the carbon sealing method is used to generate a weakly reducing atmosphere, a sufficient amount of carbon substance (5.3) shall be placed in the boat in advance. The type and amount of carbon substances as sealed in the furnace are determined by the test method according to the furnace size and tightness.

For the high-temperature furnace as shown in Figure 4, graphite powder (15 ~ 20)g can be generally placed in the center of the corundum boat; anthracite (40 ~ 50)g is placed at both ends (for gas-sparse high-corundum tube furnace) or graphite powder (5 ~ 6)g (for gas-tight corundum tube furnace) is placed in the center of the corundum boat.

Open the lid of the high-temperature furnace (6.1) and slowly push the corundum boat into the furnace, until the ash cone is located in the high-temperature zone and is close to the hot end of the thermocouple (6.2) (about 2 mm apart).

Close the furnace lid, start heating and control the heating rate as follows:

Below 900 °C, (15 ~ 20) °C/min;

Above 900 °C, (5 ± 1) °C/min.

If the ventilation method is used to generate a weakly reducing atmosphere, hydrogen or mixed gas of carbon monoxide and carbon dioxide shall be introduced from 600 °C (7.1.1.1); the ventilation rate shall avoid the air infiltration.

The linear velocity of the gas flowing through the ash cone is not less than 400 mm/min. For the high-temperature furnace as shown in Figure 4, it can be (800 ~ 1000) mL/mm.

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------