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

GB/T 18856.6-2008

Replacing GB/T 18856.9-2002

**Test methods for coal water mixture - Part 6: Determination of
the density**

水煤浆试验方法 第6部分：密度测定

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1 Scope

GB/T 18856.6-2008 is the Chinese national standard on test methods for coal water mixture - part 6: determination of the density, in the field of petroleum and related technologies. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 29 July 2008 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 April 2009. Classification: ICS 75.160, CCS D21. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Part of GB/T 18856 specifies the method summary, reagents, instruments and equipment, determination procedures, result calculation, and precision for the determination of the density of coal water mixture. This Part applies to various types of coal water mixture.

2 Normative references

The clauses in the following documents, through reference in this Part of GB/T 18856, become clauses of this Part. For dated references, all subsequent

amendments (not including errata content) or revisions do not apply to this Part. However, parties to agreements based on this Part are encouraged to study whether the latest versions of these documents can be used. For undated references, the latest edition applies to this Part.

GB/T 6682, Water for analytical laboratory use - Specification and test methods

3 Method summary

The density of coal water mixture can be obtained by measuring the mass and the volume (i.e., the volume of water discharged) of a certain amount of coal water mixture sample at 20 °C using the density bottle method.

4 Reagents

4.1 Distilled water (CO₂-free) The water used in this Part shall meet the requirements for grade-3 water specified in GB/T 6682. Freshly boiled and cooled to room temperature.

4.2 Washing solutions

4.2.1 Light gasoline or other solvents. capable of removing contaminants from density bottles and stoppers.

4.2.2 Chromic acid washing solution. Weigh 20 g of potassium dichromate (GB 642) into a 500 mL beaker; add 40 mL of water; heat to dissolve the potassium dichromate; cool to room temperature. While stirring continuously, slowly add 360 mL of concentrated sulfuric acid (GB/T 625) to the above solution that has been cooled to room temperature.

5 Instruments and equipment

5.1 Density bottle. volume, 60 mL. As shown in Figure 1.

5.2 Mercury thermometer. 0 °C ~ 50 °C; graduation, 0.2 °C.

5.3 Analytical balance. sensitivity, 0.000 1 g.

5.4 Constant temperature water bath. capable of maintaining water temperature at (20±0.5) °C.

6 Test preparation

6.1 Preparation of density bottle First, remove contaminants from the density bottle and stopper. After using cleaning solution for thorough cleaning, use water to clean, and use distilled water to rinse; dry for later use.

Note. First, use light gasoline or other solvents to remove contaminants from the density bottle and stopper. If the contaminants cannot be removed, use chromic acid washing

solution. Chromic acid washing solution is a strong acid and a strong oxidizing agent, which shall be used with caution.

6.2 Determination of blank value for density bottle Fill the density bottle with freshly boiled and cooled-to-room-temperature distilled water along the inner wall of the bottle; then place it in a constant temperature water bath at $(20 \pm 0.5) ^\circ\text{C}$ for 1 h. Put the cap back on and let the excess water overflow from the capillary tube (there shall be no air bubbles in the bottle or the capillary tube at this time; otherwise, add water and put the cap back on). Quickly dry the density bottle; weigh it immediately (accurate to 0.000 2 g). Then place the density bottle in a constant temperature water bath at $(20 \pm 0.5) ^\circ\text{C}$ and keep it at that temperature for

0.5 h until the difference in mass between the two measurements is less than 0.001 5 g. Take the arithmetic mean of the two measurements as the blank value m_0 for the density bottle. The blank value of the density bottle shall be measured once a month.

7 Determination procedures

7.1 Add the well-stirred coal water mixture sample to a pre-dried, clean, blank-tested, and weighed density bottle (accurate to 0.000 2

g) until it is half the volume of the density bottle; weigh it (accurate to 0.000 2

g) to obtain the mass m_1 of the coal water mixture sample.

7.2 Pour freshly boiled and cooled-to-room-temperature distilled water into the density bottle along the inner wall until it is about 1 cm below the bottle opening; then place it in a constant temperature water bath at $(20 \pm 0.5) ^\circ\text{C}$ for

0.5 h.

7.3 Use a pipette to add boiled $20 ^\circ\text{C}$ or room temperature distilled water along the neck of the bottle to the opening; then put the cap on the bottle and let the excess water overflow from the capillary tube on the stopper (at this time, there shall be no air bubbles in the bottle or the capillary tube, otherwise water shall be added and the stopper shall be put back on).