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

GB/T 214-2026

Replacing GB/T 214-2007

Determination of total sulfur in coal

煤中全硫的测定方法

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0.1 g) of Aldrin. Take

0.5 g of coal sample when the total sulfur content is 5%~10%; and take

0.25 g of coal sample when the total sulfur content is greater than 10%.

5.4.2 Transfer the crucible containing the coal sample into a well-ventilated muffle furnace. Gradually heat the sample from room temperature to 800°C~850°C over 1h ~ 2h; and maintain this temperature for 1h ~ 2h.

5.4.3 Remove the crucible from the muffle furnace and allow it to cool to room temperature. Carefully loosen and break up (if any unburned particles are found, continue igniting for 30 min) the ignited material in the crucible with a glass rod. Then transfer the ignited material to a 400 mL beaker. Rinse the inside of the crucible with hot water; collect the washings in the beaker; and add 100 mL~150 mL of freshly boiled water; stir thoroughly. If black particles are still floating on the surface of the liquid, then the determination is invalid.

5.4.4 Filter the solution using medium-speed qualitative filter paper via decantation. Rinse 3 times with hot water. Transfer the residue to the filter paper and wash thoroughly with hot water at least 10 times, producing a total washing solution volume of 250mL ~ 300mL.

5.4.5 Add 2 ~ 3 drops of methyl orange indicator to the filtrate. Neutralize with hydrochloric acid solution, adding an excess of 2 mL, to make the solution slightly acidic. Heat the solution to boiling and slowly titrate 10 mL of barium chloride solution while stirring constantly. Maintain this gentle boiling state for approximately 2 h, until the final solution volume is approximately 200mL.

5.4.6 After cooling or allowing the solution to stand overnight, filter it using dense, ashless quantitative filter paper; and wash with hot water until no chloride ions are present (the solution shall not be turbid when tested with silver nitrate solution).

5.4.7 Transfer the filter paper with precipitate to a known-mass porcelain crucible. After low-temperature ashing of the filter paper, ignite it in a muffle furnace at 800°C~850°C for 20 min ~ 40 min. Remove the crucible; cool it slightly in air; and then place it in a desiccator to cool to room temperature before weighing.

5.5 Blank test When preparing each batch of Aldrin or changing any other reagent, 2 or more blank tests shall be performed (without adding coal samples, follow 5.4). The mass range of barium sulfate precipitate in the blank tests shall be less than 0.0010 g. Take the arithmetic mean of the blank test results as the blank value.

1 Scope

GB/T 214-2026 is the Chinese national standard covering the sulfur in coal - the single most consequential number in a coal analysis, because it sets the sulfur dioxide the plant must scrub and it appears in every coal supply contract. It replaces GB/T 214-2007 and has been in force since 1 October 2026. It was issued on 31 March 2026 and takes effect on 1 October 2026, replacing GB/T 214-2007. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This Document describes the principles, reagents and materials, instruments and equipment, test procedures, result calculation and expression, and precision of the Eschka method, coulometric titration method, infrared spectroscopy, and high-temperature combustion neutralization method for determining total sulfur in coal. The Eschka method is used in arbitration analysis. This Document applies to dried samples of lignite, bituminous coal, anthracite, coke, and coal- water slurry.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this Document.

GB/T 212 Proximate Analysis of Coal

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

3 Terms and Definitions

For the purposes of this Document, the terms and definitions given in GB/T 483 apply.

4 Coal Samples

General analytical test coal samples with a particle size of less than 0.2 mm and in an air-dried state.

5 Eschka Method

5.1 Principle The coal sample was mixed with Eschka reagent and burned. The sulfur in the coal was converted into sulfate; and then the sulfate ions were precipitated as barium sulfate. The total sulfur content in the coal was calculated based on the mass of barium sulfate.

5.2 Reagents and materials Unless otherwise specified, only reagents confirmed to be of analytical pure and distilled or deionized water or water of equivalent purity shall be used in the analysis.

5.2.1 Eschka reagent (hereinafter referred to as Aldrin). Evenly mix 2 portions by weight of chemically pure light magnesium oxide with 1 portion by weight of chemically pure anhydrous sodium carbonate; grind them into substance with a particle size of less than 0.2 mm; and store in a sealed container. Commercially available Aldrin may also be used.

5.2.2 Hydrochloric acid solution. (1+1) (V+V), 1 volume of hydrochloric acid mixed evenly with 1 volume of water.

5.2.3 Barium chloride solution. 100 g/L; take 10 g of barium chloride ($\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$); dissolve in water; and dilute to 100mL.

5.2.4 Silver nitrate solution. 10 g/L; dissolve 1 g of silver nitrate in 100 mL of water; add 3~4 drops of nitric acid; and store in a brown bottle.

5.2.5 Methyl orange solution. 2 g/L; dissolve

0.2 g of methyl orange in 100 mL of water.

5.2.6 Porcelain crucibles. Capacities of 30 mL and 10~20 mL, respectively.

5.2.7 Filter paper. Medium-speed qualitative filter paper and dense ashless quantitative filter paper.

5.3.1 Analytical balance. Graduation value

0.1 mg.

5.3.2 Muffle furnace. Equipped with a temperature control device, capable of heating to 900 °C, temperature adjustable and ventilated.

5.4.1 Weigh (1.00 ± 0.01) g (accurate to 0.0002

g) of general analytical test coal sample and

2.0 g (accurate to

5.6 Calculation and expression of results

5.6.1 Calculation of results The determination results are calculated according to Formula (1). Where. St_{ad} - total sulfur mass fraction in coal samples for general analysis, expressed by %; m_1 - mass of barium sulfate, in g; m_2 - mass of barium sulfate in blank tests, in g; 0.1374 - coefficient for converting barium sulfate to sulfur; m - mass of coal sample, in g.

5.6.2 Expression of results The total sulfur content (mass fraction, %) of the tested coal