

JIS

JAPANESE INDUSTRIAL STANDARD

Method for Determination of Mineral Matter in Coal

JIS M 8818—1986

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by

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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Method for Determination of Mineral
Matter in Coal

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1. Scope

This Japanese Industrial Standard specifies the method for determination of mineral matter in coal.

- Remarks 1. The mineral matter means the inorganic matter (%) contained in coal. Though the water of crystallization is contained in the mineral matter, total moisture or moisture in the analysis sample is not contained therein.
2. The ash means the inorganic matter (%) remaining when coal is incinerated by heating under specific conditions and chemical changes such as the decomposition of carbonate mineral, the combustion of ironpyrite sulfur, etc. are generated in the process of incineration. Therefore, the minerals originally contained in coal differ in composition and mass from incineration residue and the value of mineral matter disagrees with the value of ash.
3. The units and numerical values given in { } in this Standard are in accordance with the conventional units and appended for informative reference.

2. Definition

The definitions of principal terms used in this standard are in accordance with JIS M 0104.

3. General Matters

3.1 Sample For the sample, the air dried sample prepared in accordance with 4.6 of JIS M 8811 or the constant humidity sample prepared in accordance with 4.7 of JIS M 8811. However, its particle size shall be not more than 200 μm .

Remark: If an air dried sample is stored by hermetically sealing, its moisture is not almost changed for at least about seven days. Therefore, the moisture of air dried sample may be not determined at every time when the mineral matter is determined.

3.2 Weighing Apparatus

3.2.1 Balance and Weight When mass is measured, the balance and weight specified in JIS M 8810 shall be used.

3.2.2 Volume Meter When the volume of liquid is measured, the chemical volume meter specified in JIS M 8810 shall be used.

Applicable Standards and Corresponding International Standard: See page 9.

3.2.3 Thermometer When temperature is measured, the thermometer specified in JIS M 8810 shall be used.

3.3 Reagents and Water For the reagents and water other than those specified especially in respective items, those specified in JIS K 0050 shall be used.

4. Method

4.1 Summary A sample is decomposed with hydrochloric acid and hydrofluoric acid under specific conditions, filtered and the mass of residual coal is obtained. As to the residual coal, ash, ironpyrite, and adsorbed hydrochloric acid are determined. The mass of all inorganic matter in the sample is calculated from those values and its percentage to the mass of dry sample is made to be the mineral matter.

Informative Reference: An calculation example of determination results of mineral matter is shown in Reference Table. However, all the values of respective items are converted to dry basis to be expressed.

4.2 Measuring Method for Mass of Residual Coal

4.2.1 Apparatus and Devices The apparatus and devices shall be as follows. However, those of hydrofluoric acid resistant material shall be used. Especially, materials such as polycarbonate, polyvinyl chloride, polystyrene, polypropylene, ethylene tetrafluoride, etc. are preferable.

- (1) Beaker That of capacity 200 ml, with a cover.
- (2) Filter That with a membrane filter (made of ethylene tetrafluoride, 0.2 μm in hole diameter, ϕ 47 mm).
- (3) Constant Temperature Reduced Pressure Drier That capable of being kept at 50°C and 3.5 kPa {0.357 mm H₂O}.

4.2.2 Reagents The reagents shall be as follows:

- (1) Hydrochloric Acid That specified in JIS K 8180.
- (2) 5 N Hydrochloric Acid 475 to 500 ml hydrochloric acid is diluted with water to 1 l.
- (3) Hydrofluoric Acid That specified in JIS K 8819.
- (4) Ethanol That specified in JIS K 8101.

4.2.3 Weighing out Amount of Sample Approx. 10 g of a sample shall be weighed out to the nearest 1 mg (^A).

4.2.4 Operation The operation shall be conducted according to the following procedures: