



Approved by General Administration of Quality Supervision
Inspection and Quarantine of the People's Republic of China
GBW11121—GBW11123



Certificate of Certified Reference Material

Fluorine in Coal



Sample Number

Date of Certification

Date of Expiration



China National Coal Quality Supervision and Testing Center

(Coal Analysis laboratory, China Coal Research institute)

Beijing China





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These certified reference materials consist of 3 coal samples with different fluorine contents for use as analytical standards for fluorine analysis of coal.

1. Preparation and Homogeneity

Each coal collected was air dried, reduced in size to <0.2mm, homogenized and packaged into individual bottled units.

The homogeneity test was done on the 25 bottled units taken from all units at random by determination of ash and fluorine respectively. The minimum weight of sample taken for analysis is 0.5g. Variance analysis showed that the variability among different bottles was not significantly different from the variability between replicate determinations.

2. Certified Value and Uncertainty

GBW No.	Certified Value and Uncertainty	Fluorine µg/g
GBW 11121	Certified Value Uncertainty	248 12
GBW 11122	Certified Value Uncertainty	864 20
GBW 11123	Certified Value Uncertainty	1496 30

3. Analysis methods and Certification

The fluorine analysis was performed using Pyrohydrolysis-Ion Selection Electrode (ISE) method and Ion Chromatography (IC) method by 8 qualified laboratories respectively. The certified values were calculated by statistic analysis and was expressed as $X_T \pm U$, were X_T is the certified value and U is the expanded uncertainty (95% confidence level).

4. Stability

The validations of the certified values are temporarily 5 years, they are confirmed for every



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5 years. China National Coal Quality Supervision and Testing Center will monitor the change of certified value regularly and inform the users if any significant change is observed.



5. Package, Storage and Usage

- 1) These certified reference materials are packed in a glass bottle with blown color. Each weights 50g.
- 2) The bottle containing the materials must be kept tightly stopped and stored in cold and dry place, and opened only when necessary.
- 3) All data in the table are expressed on air dry bases.

The preparation of samples, the statistical analysis and the overall directions and coordination of the technical measurements leading to certification were performed by China National Coal Quality Supervision and Testing Center, China Coal Research Institute.



