

AA-D

Ash Analyzer



Ash Analyzer

1. Product Overview

Ash Analyzer(AA-D) is an offline analytical instrument for rapid and accurate analysis of coal sample ash content in industrial processes. The analyzer simplifies the complex and cumbersome sample handling process and can directly measure the collected coal samples while meeting the particle size requirements. The measuring speed is fast, the representative of the results is good, and it has a very strong guiding significance for actual production.

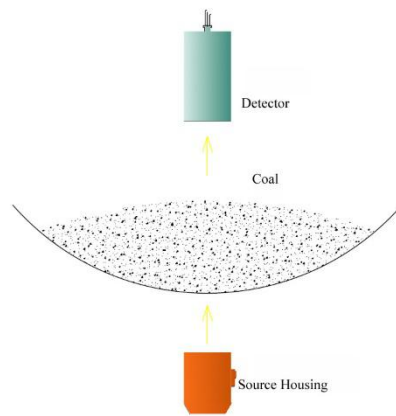
AA-D can meet the needs of rapid and accurate analysis of coal ash in coal mining, processing and utilization. It can be widely used in coal mine, coal preparation plant, thermal power plant, coking plant, steel plant, coal wharf and other applications.



2. Working Principle

Coal can be as a mixture of combustible and non-combustible (mineral). Among them, the combustible material mainly includes carbon, hydrogen, nitrogen, sulfur, etc., with an average atomic number of about 6, and non-combustible composition is mainly silicon, aluminum, calcium, magnesium, iron, etc., with an average atomic number of about 13. When the ash content of coal changes, it will inevitably lead to changes in the average atomic number. When γ photons are irradiated on coal, a part of them will be absorbed by coal and a part of them will go through coal. On the one hand, the attenuation degree of γ photons is related to the thickness of the coal layer; on the other hand, the attenuation degree of γ photons is related to the average atomic number of coal.

By establishing a mathematical model between coal ash changes and the counting of two γ photons passing through coal layer, it can calculate the coal ash value.



Ash Analyzer Schematic Diagram

3. Product Composition

AA-D is composed of double-photon output, detector, scanning platform, intelligent host, temperature controller, printer, power conditioner, connecting cable, etc.

4. Technical Parameters

- Measurement range: 5%~50%
- Measurement accuracy:
 - Clean coal: error $\leq 0.5\%$, 1σ ;
 - Low-ash raw coal: error $\leq 1.0\%$, 1σ ;
 - High-ash raw coal: error $\leq 1.5\%$, 1σ ;
- Typical measuring time: 3~5min
- Sample box size: 6L
- Repeatability: Measure one sample for multiple times and the root-mean-square of results has an error less than 0.2%.
- Long-term stability: Continuously measure a standard block for 24 hours, the deviation of any "ten-minute ash content" measured value from the average is not beyond 0.5%.
- Field ambient temperature range: 0~45°C
- Field ambient humidity range: $\leq 95\%$, non-condensing
- Radiation safety: Dose equivalent rate at 5cm from the instrument surface is $\leq 2.5\mu$ Sv/h, and

that at 1m from the instrument is $\leq 0.25\mu$ Sv/h. It has no limitation on personnel range of activity. Normal use of this instrument will not cause any damage to the operators.

5. Product Application

- Can achieve a fast measurement of incoming coal to eliminate adulteration effectively.
- Can rapidly measure coal samples taken from the production process to know product quality fluctuation timely and adjust the production process duly.
- Can help coal-consuming enterprises manage purchased coal according to the level of ash content.
- Can help coal-dressing enterprises to put coal in bunkers hierarchically according to the level of ash content.



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