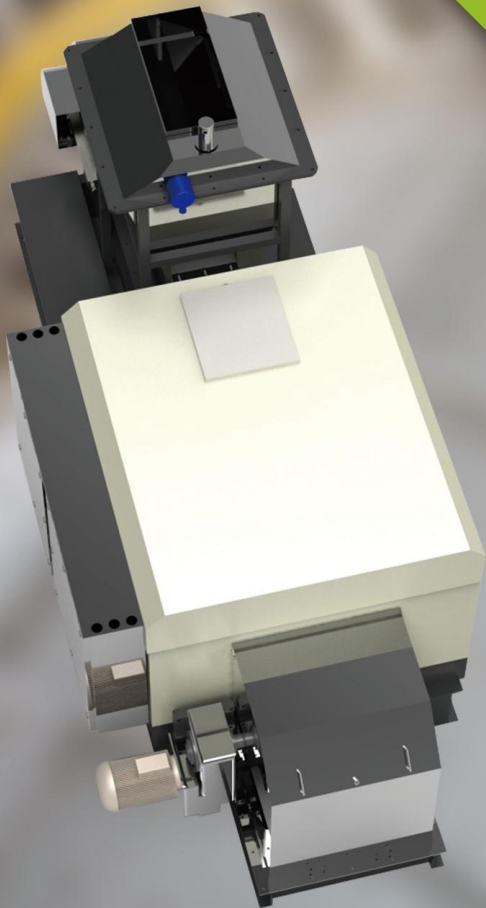


# EA-coal

Elemental Analyzer

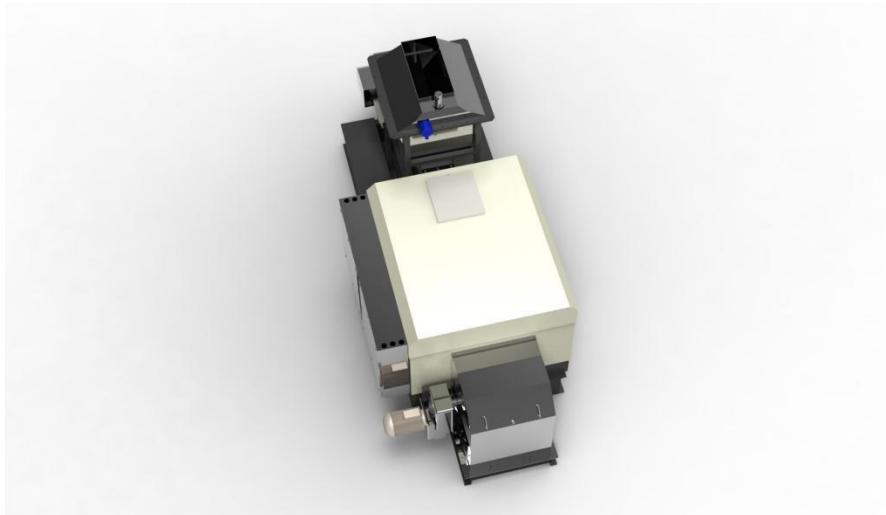


## Elemental Analyzer (EA-coal)

### 1. Product Overview

Elemental Analyzer (EA-coal) is one kind of online by-pass coal material detection equipment. EA-coal has momentous significance in coal washing, coal blending, quality analysis for the incoming and outgoing coal, blending of coal putting into the furnace, production process control, etc.

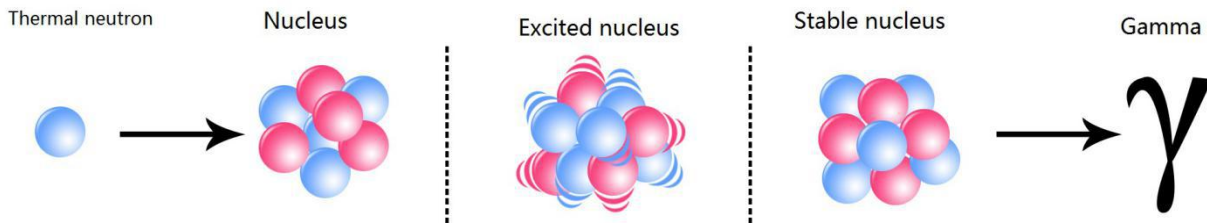
Based on the prompt gamma neutron activation analysis (PGNAA) technology and with the Microwave Moisture Meter integrated inside, EA-coal can substitute traditional chemical analysis methods and conduct rapid coal analysis. In comparison with the Online Cross-belt Coal Analyzer, it has higher accuracy. This analyzer needs to take coal samples from the sampling system, and then presents the detection results every minute. By analyzing main coal parameters and industrial indexes in a real-time manner, it can effectively supervise and control coal quality and it is characterized by short analysis time, high analysis precision, etc.



### 2. Operating Principle

EA-coal adopts prompt gamma neutron activation analysis (PGNAA) technology. The neutron source emits rapid neutrons with average energy at 2.35Mev, which are then degraded into thermal neutrons by the measuring unit. The thermal neutrons radiate materials, so that the thermal neutron capture reaction can be made among the nucleuses of various elements in the material to emit

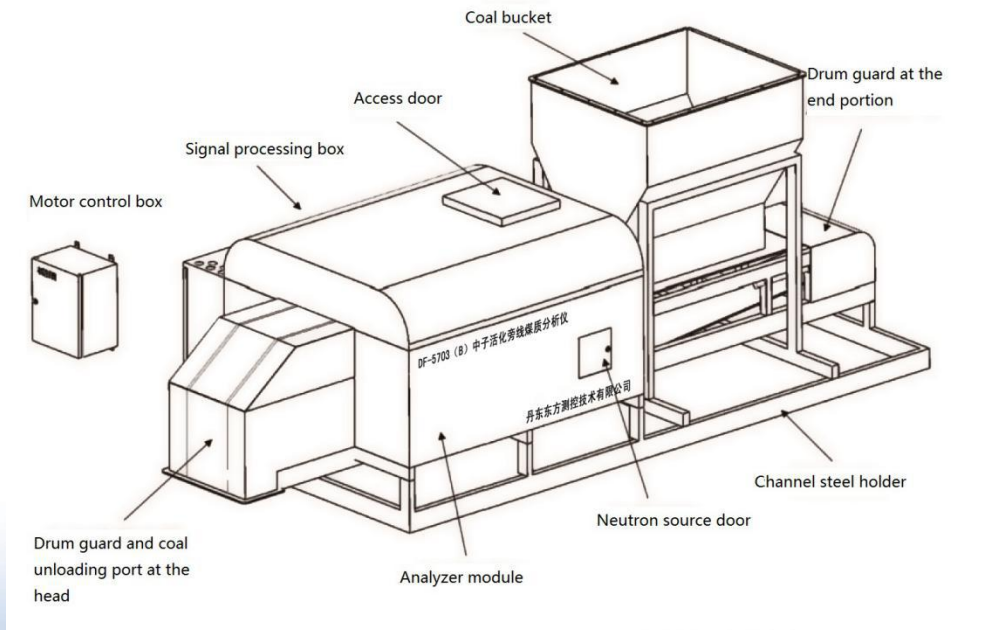
characteristic gamma rays with different energies and intensities. By testing the energy in characteristic gamma ray, the element categories in the material can be distinguished, and by testing the intensity of gamma ray with specific energy, the content of element can be obtained.



PGNAA Schematic Diagram

### 3.Product Structure

EA-coal consists of an analyzer module, neutron source, detector, signal processing cabinet, motor control box, main unit, coal bucket, drum guard, coal unloading port and support made of channel steel, etc.



### 4. Technical Parameters

Length	4950mm
Width	2000mm
Height	2300mm
Width Requirements	1600mm belt center to the right, 1960mm belt center to the left
Hopper Capacity	600kg
Radioactive Source	$^{252}\text{Cf}$ (Neutron Source), $^{137}\text{Cs}$ (Gamma Source)
Normal Running Temperature	$-30^{\circ}\text{C}\sim 50^{\circ}\text{C}$
Power Source	220VAC, 50HZ, 6A, 3 lines (L, N, GND) 380VAC, 50HZ, 125A, 3 phase 4lines (L1, L2, L3, N)
Signal Processing Cabinet to Main Unit	Ethernet
Measuring Principle	Prompt gamma neutron activation analysis (PGNAA) technology
Measuring Parameter	Ash content, moisture content, sulfur content, $\text{SiO}_2$ , $\text{Al}_2\text{O}_3$ , $\text{Fe}_2\text{O}_3$ , $\text{CaO}$ , $\text{TiO}_2$ , $\text{Na}_2\text{O}$ , $\text{K}_2\text{O}$ , etc. $\text{Na}_2\text{O}$ , $\text{K}_2\text{O}$ , etc.
Calculation Parameter	Calorific value, and any possible parameters that can use empirical equation

The parameters reported by EA-coal are as follows:

**Industrial indexes:**

Ash content, moisture, calorific value, sulfur content, etc.

**Composition of ash content:**

$\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{CaO}$ ,  $\text{TiO}_2$ ,  $\text{Na}_2\text{O}$ ,  $\text{K}_2\text{O}$

**5. Product Application**

In coal analysis domain, EA-coal is mainly used in quality analysis of incoming and outgoing coal, mixed coal and coal blending as well as production process control. In combination with the truck, train or belt sampling device, it can detect the incoming coal and present the coal analysis data in

time to know coal quality to avoid disputes arising out of the contract. Combined with mechanical sampling on coal-mix belt, based on the real-time coal detection information presented by the analyzer, it realizes coal blending function by controlling the feed quantity of raw coal or manual guidance.



Incoming coal detection application on one site of CNBM



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