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**YS**

**NONFERROUS METALS INDUSTRY STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**YS/T 124.4-2010**

Replacing YS/T 124.4-1994

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**Methods of determination and calculation of heat balance in  
metallurgical furnaces for production of carbon products. Part  
4: Calcinator**

炭素制品生产炉窑 热平衡测定与计算方法 第4部分：焙烧炉

**(English Translation)**

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### Foreword

YS/T 124 "carbon products manufacturing Determination and calculation of heat balance of the furnace" is divided into five parts.

--- Part 1. rotary kiln;

--- Part 2. Tank calciner;

--- Part 3. Electrical calciner;

--- Part 4. roaster;

--- Part 5. Graphite resistance furnace.

This section YS/T Part 4 124.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This standard by the national non-ferrous metals Standardization Technical Committee (SAC/TC243) centralized.

This part is YS/T 124-1994 "carbon products manufacturing Determination and calculation of heat balance of the furnace," in part roaster amendments.

Compared with YS/T 124-1994, the main changes are as follows.

--- Specification standard unit of measurement, symbols and text formatting;

--- Furnace surface heat unified concept, which will help with the actual production site, to facilitate determination;

--- Furnace heat storage increase is calculated starting with the furnace heat storage differ.

The non-ferrous metal part by the National Standardization Technical Committee and

centralized.

This part of the Aluminum Corporation of China Guizhou Branch is responsible for drafting.

## **1 Scope**

YS/T of the provisions of section 124 of the thermal balance determination and calculation method of producing carbon products covered (or open) roaster.

This section applies to the production of carbon products covered (or open) Determination and calculation of heat balance of the roaster, baking graphite electrode products Burning may also refer to the application.

## **2 Measurement system**

Thermal balance determination system, under normal operation conditions, from warm-up to a high temperature baking process in line with the requirements of the curve, preheat the oven chamber to the high as a system within a measurement cycle between room temperature oven.

## **3 Determination of requirements and time**

### **3.1**

was measured in the time to run the chamber must produce the same product specifications, installed furnace capacity roaster chamber must meet the technical regulations of each Furnace room temperature to run the process control technology products at or near the firing curve, stable operation and good working conditions.

### **3.2**

Determination of a predetermined time period to run, under normal circumstances, take each time moving a lid, or move a burning aircraft and Unicom Cover time, time is measured.

### **3.3**

Determination period to within firing qualified products unit mass of heat balance calculation basis.

## **4.1 Determination of the amount of material entering the furnace chamber**

### **4.1.1**

Determination of mass charged into the furnace chamber carbon products manufacturing blanks.

#### **4.1.2**

Determination of mass charged into the furnace chamber filler.

#### **4.1.3**

Determination of physical and chemical analysis of materials, including products and green filler temperature, moisture and green products and applications based low filler (Bits) heat and specific heat.

### **4.2 Determination of the chamber into the fuel and hot water**

#### **4.2.1**

heavy oil or gas accumulated amount accumulated amount, determined by the existing production equipment and measurement methods of measurement.

#### **4.2.2**

The nature of the physical and chemical analysis of the fuel, including fuel temperature, pressure, composition, and on average lower than the thermal application group (bits) heat.

Wherein. Determination of fuel applications based low (bits) calorific value is calculated by the following formula may be used.

$Q_{mgdwy} = 126CO + 108H_2 + 359CH_4 + 636C_2H_6 + 234H_2S$  (1) where. CO; H<sub>2</sub>; CH<sub>4</sub>; C<sub>2</sub>H<sub>6</sub>, H<sub>2</sub>S --- chemical composition of the fuel volume fraction (%).

#### **4.2.3**

Determination of the cumulative amount of hot water into the oven chamber temperature.