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YS

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

YS/T 124.3-2010

Replacing YS/T 124.3-1994

**Methods of determination and calculation of heat balance in
metallurgical furnaces for production of carbon products. Part
3: Electric calciner**

炭素制品生产炉窑 热平衡测定与计算方法 第3部分：电气煅烧炉

(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 124 Part 3.

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 the electrical part of the calciner repair Order. Compared with YS/T 124-1994, the main changes are as follows.

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

--- Refine the classification of condensate, more scientifically evaluate the cooling effect.

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 carbon products production, power energy, coke calcining anthracite or mixed vertical or horizontal electric Thermal balance determination and calculation of the reference calciner, measurement conditions, measurement items and measuring method of calculation.

This section applies to the production of carbon products, electric energy as energy, coke calcining anthracite or mixed vertical or horizontal electric hot calciner flat Value Determination and calculation.

2 Measurement system

Determination of thermal equilibrium system mainly furnace body, including raw materials into the furnace mouth; flue gas discharge port, the discharge port; electrode cooling water inlet, stove Importers cooling water jacket; transformer into the electrical terminals and short net.

3 Determination of requirements and time

3.1

Determination of thermal equilibrium in the cycle time, must be in electrical calciner measured under normal operating conditions, the production conditions are met Determination of the maximum capacity of the organization (or design capacity).

3.2

Determination of a predetermined continuous period of not less than 6h, less than the number of measurements for each measurement item 3 times, and then averaged.

4.1 Determination of electric power transformer calciner each measuring point

Recording parameters of each measuring point supply transformer, power transformer and brand parameters.

4.2 Determination of the amount of material out of the furnace

4.2.1

When measuring the amount of material out of the furnace, measured by the volumetric method of measurement, or cumulative electronic scales.

4.2.2

Physical and chemical analysis of the material out of the furnace, and out of the furnace was measured material temperature, moisture, application-based low (bits) and the specific heat and heat electrode Burning amount per unit time.

4.2.3

Determination of material out of the furnace applications based low (bits) heat and specific heat, low application group (bits) heat can look-up table or by the formula (1) to (3) Calculated.

Anthracite $Q_{wmdwy} = (K_0 \cdot 84 \times W_y - 92 \times A_y - 24 \times V_y) \cdot 4.1868$ (1) Soderberg electrode
 $Q_{dJdwy} = (8100 - 92 \times A_y) \cdot 4.1868$ (or 33013kJ/kg) (2) Powder coal $Q_{dmdwy} = (8100 - 92 \times A_y - 24 \times V_y) \cdot 4.1868$ (or 33013kJ/kg) (3) where.

Q_{wmdwy} --- anthracite applications based low (bits) heat units of kilojoules per kilogram (kJ/kg);

K_0 --- variable coefficients, the combustible coal-based hydrogen percentage corresponding value;