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YS

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

YS/T 124.5-2010

Replacing YS/T 124-1994

**Methods of determination and calculation of heat balance in
metallurgical furnaces for production of carbon products. Part
5: Greying resistance furnace**

炭素制品生产炉窑 热平衡测定与计算方法 第5部分：石墨化电阻炉

(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 5.

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 graphite resistance furnace section of Amendments. Compared with YS/T 124-1994, the main changes are as follows.

- Specification standard unit of measurement, symbols and text formatting;
- Highlighting the standards of rigor, unity.

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 of resistance by graphite furnace, through determination and calculation, study resistance furnace Under normal operating conditions and performance levels with the energy situation.

Determination and calculation of heat balance in this section applies to all types of DC graphite resistance furnace, AC graphitization resistance furnace can also be implemented by reference.

2.1 Determination System

Measurement system for the whole of graphite resistance furnace, including the power supply portion of the transformer and rectifier unit.

2.2 Determination of time

Graphite resistance furnace of the power transmission start time of transmission to the entire process of graphite resistance furnace outage termination of a measurement cycle.

3.1 Determination of power supply equipment

3.1.1

using the console, the dashboard and on-site souvenir token indication.

The transformer primary voltage, current, active power, reactive power, power factor 3.1.2 determination; the secondary side of the voltage and current.

3.1.3

Determination rectifier current, voltage, resistance and calculates the direct power of the system.

3.1.4

Determination of the bus to the voltage drop of the graphite resistance furnace conductive graphite block junction, the contact resistance value calculated throughout. Measurement system Current must be more than 80% of the rated output current.

3.2 Temperature measurement

Temperature measurement are shown in Table 1.

Table 1 graphite resistance furnace each measuring point of temperature measurement

Reference measuring point measurement method requirements SMIC furnace 1 electrode blanks 2 outer electrode blanks Resistive material layer 3

4 Insulation material layer

Kui stone hearth layer 5 the graphite tube is inserted into the furnace core temperature, respectively, in the stove, oven, stove insert each end of a Root, within 1000 °C measured with a thermocouple, higher than 1000 °C, with spokes Shot pyrometer or infrared thermometer measurement Buried on both sides and the middle of each thermocouple measurement with soft thermocouple embedded silica layer, the protective sleeve plus lead each measuring point requirements in a short time After determination of every 4h measuring once