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

YS/T 63.22-2009

**Carbonaceous materials used in the production of aluminium.
Part 22: Determination of baking level expressed by equivalent
temperature**

铝用炭素材料检测方法 第22部分：焙烧程度的测定 等效温度法
(English Translation)

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Foreword

YS/T 63 a total of 23 parts.

- Part 1. firing process, firing weightlessness measurement sample measurement cathode paste and green specimens apparent density;
- Part 2. Determination of cathode blocks and prebaked anodes room temperature resistivity;
- Part 3. Determination of the thermal conductivity of Comparative Law;
- Part 4. Determination of thermal expansion coefficient;
- Part 5. Determination of pressure at the bottom there is sodium expansion of carbon block;
- Part 6. Determination of open porosity hydrostatic law;
- Part 7. Determination of apparent density size method;
- Part 8. Determination of density in xylene Pyknometer;
- Part 9. Determination of true density of helium hydrometer method;
- Part 10. Determination of air permeability;
- Part 11. Determination of the reactivity to air mass loss method;
- Part 12. Determination of the reactivity prebaked anode CO₂ mass loss method;
- Part 13. Determination of Young's modulus of the static measurement method;
- Part 14. Determination of flexural strength of three-point method;

- Part 15. Determination of compressive strength;
- Part 16. Determination of Trace Elements in X-ray fluorescence spectrometry method;
- Part 17. Determination of volatile matter;
- Part 18. Determination of moisture content;
- Part 19. Determination of ash content;
- Part 20. Determination of sulfur;
- Part 21. cathode paste firing the expansion/contraction of determination;
- Part 22. Determination of equivalent temperature roasting degree method;
- Part 23. Test methods cathode block wear.

Part is divided into 22 sections.

This part identical with ISO 17499:2006 "carbonaceous materials used in aluminum --- expressed by equivalent temperature measuring method of roasting degree." this Part identical with ISO 17499:2006 is deleted when its preamble. Introduction Content incorporated into range.

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

This part of the Aluminum Corporation of China Zhengzhou Research Institute, China Nonferrous Metals Industry Institute of Standards Metrology and Quality is responsible for drafting.

This section drafted by the Aluminum Corporation of China Zhengzhou Research Institute.

This section is Suotong Development Co., Ltd., Shandong Chenyang Carbon Co., Ltd., Qingtongxia Aluminum Co., Ltd. participated in the drafting.

1 Scope

This section provides for carbonaceous materials used in aluminum equivalent temperature indicates the determination of the degree of roasting.

This section applies to the determination of aluminum with a single anode or cathode equivalent temperature of carbon roaster, the roaster and roasting in a region Computing degree. It can also be used to monitor and compare the degree of roasting laboratory sample.

2 Normative references

The following documents contain provisions which, through YS/T reference in this 63 constitute provisions of this section. For dated references, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encourage the agreement on this section Whether the parties can study the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

ISO 20203 measured after the production of aluminum calcined carbonaceous materials used in X- ray diffraction petroleum coke crystallite size (Lc)

3 Terms and Definitions

The following terms and definitions apply to this section.

Adhered to the anode or cathode Reference coke core temperature to determine the degree of roasting anode or cathode by measuring, with a balanced drive Degrees ° E is represented by a reference the average crystallite size Lc of coke can be measured using a calibration curve.

Note: The calibration curve through a series of separate reference coke samples were heat-treated at the time of 2h under different control temperature (°C), measuring the average crystallite Size Lc; equivalent temperature Teq numerically and plotted on the temperature of the calibration curve are equal.

4 Principle of the method

Determination of the anode or cathode equivalent temperature before the anode or cathode load roaster, the reference coke test containing graphite container discharge Set in the pile hole near the anode or cathode, or in a suitable cavity. After the firing is completed and the anode or cathode together, remove the graphite container, according to ISO 20203 calculate the crystallite size Lc. According to the crystallite size versus Temperature Laboratory drawn by Lc measured value calculation, etc.

Temperature effect.

5.1 Overview

For reference coke, petroleum coke calibration curve which is unique.

5.2 Selection and preparation

With a sufficient quantity of dried petroleum coke make a reference, use the reference made petroleum coke coke particles should be less than 5mm, but it was not pink Like the end. If necessary, it may be appropriately mixed by sieving and restructuring.

Note: Assuming a daily production of 400 anode, a measurement frequency of 2% per day, on average take per anode petroleum coke sample block 20g, the annual consumption is about routine 60kg. In a 168 anode production unit, draw a complete graph of the degree of roasting will consume 3.4kg of coke.

YS/T 63.22-2009/ISO 17499:2006