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YS

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

YS/T 665-2024

**Refined aluminium ingot for remelting
(English Translation)**

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1 Scope

This document specifies the product classification, technical requirements, test methods, inspection rules, marking, packaging, transportation, storage, quality certificate, purchase order (or contract) content for refined aluminum ingot for remelting.

This document applies to refined aluminum ingot for remelting (hereinafter referred to as "refined aluminum ingots") produced by the three-layer electrolysis method, segregation method, single-electrolysis method.

2 Normative references

The following documents, through normative references in this document, constitute essential provisions of this document. For dated references, only the edition cited applies; for undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 7999 Optical emission spectrometric analysis method of aluminum and aluminum alloys

GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

GB/T 20975 (all parts) Methods for chemical analysis of aluminum and aluminum alloys

GB/T 25820 Steel strapping for packaging

QB/T 3811 Plastic strapping

3 Terms and definitions

This document does not contain any terms or definitions that need to be defined.

4.1 Classification and designation

Products are classified into three types according to the process. three-layer electrolysis (represented by the letter A), segregation method (represented by the letter B), single electrolysis (represented by the letter C). Typical designations for different process types are shown in Table 1.

4.2 Designation expression method

The designation of refined aluminum ingots uses the element symbol followed by four or five digits and one uppercase letter. The element symbol represents the main element of the refined aluminum ingot, the four or five digits represent the aluminum content, the letter represents the process type. Example as follows.

4.3 Marking and examples

The marking of refined aluminum ingots is in the order of product name, document number, designation. An example of marking is as follows.

Example.

Refined aluminum ingots produced by the three-layer liquid electrolysis method with an aluminum content of not less than 99.998% are marked as.

Refined aluminum YS/T 665-Al99.998A

5.1 Chemical composition

5.1.1

The chemical composition of the product shall conform to the provisions of Table it shall be negotiated between the supplier and the buyer and specified in the order form (or contract).

5.3.2 There are no uniform requirements for the ingot shape, but it shall be suitable for packaging, transportation, storage.

6.1.1 Only elements with numerical specifications other than those in the "Al" and

"Other single" columns in Table 2 shall be routinely analyzed. If the mass fraction of an unconventional analytical element is suspected to exceed the limits specified in this document, the producer shall analyze these elements.

6.1.2 The chemical composition analysis methods for the elements listed in Table 2

shall comply with the provisions of GB/T 20975 (all parts) or GB/T 7999. Arbitration analysis of chemical composition shall adopt the methods specified in GB/T 20975 (all parts).

6.1.3 The content of "Al" element $\geq 99.90\%$ in Table 2 shall be determined by calculation.

- When the "Al" element content is $\geq 99.90\% \sim 99.98\%$, subtract the sum of all conventionally analyzed elements with a mass fraction not less than 0.0010% and the suspected excessive non-conventionally analyzed metallic elements from

100.00% . Before summing, each element value shall be expressed to $0.00xx\%$;

after summing, the total shall be rounded to $0.0x\%$.

- When the content of "Al" element is $> 99.98\% \sim 99.99\%$, subtract the sum of all conventionally analyzed elements with a mass fraction not less than 0.0001% and the suspected excessive non-conventional analyzed metal elements from 100.00% .

Before summing, each element value shall be expressed to $0.000xx\%$; the sum shall be rounded to $0.0x\%$.

- When the content of "Al" element is $> 99.99\%$, subtract the sum of all conventionally analyzed elements with a mass fraction not less than 0.00005% and the suspected excessive non-conventional analyzed metal elements from 100.00% .

Before summing, each element value shall be expressed to $0.0000xx\%$; the sum shall be rounded to $0.00x\%$.

6.1.4 The determination of analytical values adopts the rounding comparison method.

The numerical rounding rules are in accordance with the relevant provisions of GB/T 8170; the rounded digits are consistent with the limit digits specified in Table 2 of this document.

6.2 Appearance quality

Product appearance quality shall be inspected visually.

6.3 Ingot shape and weight

Products shall be weighed; ingot shape shall be inspected visually.

7.1 Inspection and acceptance

7.1.1

The supplier shall inspect the products, to ensure that the product quality conforms to the provisions of this document and the purchase order (or contract); complete a quality certificate.

7.1.2

The purchaser shall inspect the received products according to the provisions of this document. If the inspection results do not conform to the provisions of this document and the purchase order (or contract), a written objection shall be raised to the supplier; the two parties shall negotiate a solution. Objections concerning chemical composition and other issues shall be raised, within one month from the date of receipt of the products; objections concerning other performance aspects shall be raised, within three months from the date of receipt of the products. If arbitration is required, it may be entrusted to an organization recognized by both the supplier and the purchaser;

samples shall be taken jointly by the purchaser.

7.2 Group batching

Products shall be submitted for acceptance in batches; each batch shall consist of products from the same smelting number.

7.3 Weighing

Products shall be weighed.

7.4 Inspection items

Each batch of products shall be inspected for chemical composition and appearance quality before leaving the factory. The weight of a single ingot is guaranteed by the supplier's process and is not inspected before leaving the factory.

7.5 Sampling

Take one refined aluminum ingot each from the top, middle, bottom of any bundle of products in this batch. If the refined aluminum ingots are scattered and the top, middle, bottom are indistinguishable, randomly sample no less than three pieces.

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