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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Recycling materials for cast aluminium alloys
(English Translation)**

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Table of Contents

Foreword...	3
1 Scope...	4
2 Normative references...	4
3 Terms and definitions...	4
4 Classification...	5
5 Requirements...	6
6 Test method...	9
7 Inspection rules...	12
8 Packaging, transportation, storage and quality certificate...	16
9 Order form (or contract) contents...	18
Appendix A (Informative) Typical photos of raw materials...	19
Appendix B (Informative) Vibrating screen...	22
Appendix C (Normative) Volatile substance test method...	25

1 Scope

This Standard specifies the classification, requirements, test methods, inspection rules, marking, packaging, transportation, storage, quality certificate and order form (or contract) contents of recycling materials for cast aluminium alloys.

This Standard applies to recycling materials for cast aluminium alloys (hereinafter referred to as materials) that are obtained after recycling and processing of recycling aluminium in used vehicles, aluminium appliances, and mechanical equipment.

2 Normative references

The following documents are indispensable for the application of this document.

For dated references, only the dated version applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

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

GB/T 8005.1, Aluminium and aluminium alloys - Terms and definitions - Part

1.product and method of processing and treatment

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

GB/T 17432, Methods of sampling for analyzing the chemical composition of wrought aluminum and aluminum alloys

GB/T 20975, Methods for chemical analysis of aluminium and aluminium alloys

YS/T 491, Flux for wrought aluminium and aluminium alloy

3 Terms and definitions

Terms and definitions determined by GB/T 8005.1 and the following ones are applicable to this document.

3.1 Recycling materials for cast aluminium alloys

The materials that meet the relevant requirements of this Standard and can be used to produce cast aluminium alloy ingots or products, which are obtained from recycled cast aluminium alloys or mixed metals that contain aluminium after processing, such as sorting.

3.2 Foreign material

Non-metallic substance that is doped or adhered to the raw material.

Note: It includes dust, wood, textiles, plastics, glass, stone, paper, sand, rubber, sludge, etc.; it doesn't include the packaging of this product and other substances that need to be used during transportation.

3.3 Volatile substance

Impurities that can be separated from raw materials after proper heat treatment at a temperature below the melting point of the metal.

3.4 Aluminium and aluminium alloy content

The mass fraction of the aluminium material that can be selected from the raw material.

3.5 Total metal content

The mass fraction of the metallic material that can be selected from the raw material.

Note: Metallic material mainly includes aluminium, silicon, copper, magnesium, zinc, etc.

3.6 Metal recovery rate

The mass fraction of metallic materials that are produced from raw materials through pretreatment and smelting treatment in accordance with the methods that are specified in

this Standard.

4 Classification

Raw materials can be divided into three types. castings, recycled aluminium ingots, and aluminium blocks. The raw material description and source are shown in Table 1; typical photos of raw materials are shown in Appendix A.

c) The radiative contamination level on surface alpha and beta of the raw material is. for the average value of the maximum test level of 300 cm² on any part of the surface, alpha does not exceed 0.04 Bq/cm², and beta does not exceed

0.4 Bq/cm².

5.11 Other requirements

5.11.1

The raw materials shall not be mixed with flammable materials, and shall not be mixed with explosives such as waste bombs and shells.

5.11.2

The raw materials shall not be mixed in closed containers or pressure vessels.

6.1 Appearance quality

Visually inspect the appearance of the sample. The sample should be laid flat on a clean surface for inspection.

6.2.1 General inspection

Visually check the sample dimensions. The sample should be laid flat on a clean surface for inspection. When it is suspected that it does not meet the requirements, perform the arbitration inspection in accordance with 6.2.2.

6.2.2.1 Casting and recycled aluminium ingot

Use a measuring instrument of appropriate accuracy to measure the dimensions.

6.2.2.2 Aluminium block

6.2.2.2.1

Weigh the sample mass and record it as m.

6.2.2.2.2

Use a sieve shaker (see Appendix B) to sieve the sample; the vibration time is 5 minutes; use an electronic scale, of which the accuracy is 0.5 kg, to weigh the mass of the sieved

material, and record it as m' .

6.2.2.2.3

Calculate the sieving pass rate w_s of the aluminium block sample according to Formula (1); express the value in %; display the calculation result to the single digit; round off according to the provisions of GB/T 8170.

7.1.1 The product shall be inspected by the supplier before delivery, so as to ensure that the product quality complies with the requirements of this Standard and the order form (or the contract); the supplier shall fill in the quality certificate.

7.1.2 The buyer or the relevant regulatory authority may conduct a re-inspection of the received products in accordance with the provisions of this Standard. If the re-inspection result is inconsistent with the requirements of this Standard and the order form (or contract), a written form shall be submitted to the supplier;

the issue shall be settled by negotiation between the supplier and the buyer.

Arbitration, if required, may be carried out by an organization which is recognized by both the supplier and the buyer; the sampling shall be jointly done by the buyer.

7.2 Batch

7.2.1

Raw materials shall be submitted for inspection in batches. The batch weight and batch weight deviation shall be determined through consultation between the supplier and the buyer.

7.2.2

Each batch of castings consists of similar castings.

7.2.3

Each batch of recycled aluminium ingots consists of no more than 5 molten ingots.

7.2.4

Each batch of aluminium blocks consists of aluminium blocks of the same source and size.

7.3.1 Inspection items

For each batch of raw materials, the appearance quality, dimensions, foreign material content, chemical composition, radioactive contaminants and other requirements shall be inspected; the volatile substance content, fracture structure of recycled aluminium ingots, aluminium and aluminium alloy content, total metal content, and metal recovery rate shall be determined by the supplier process assurance. The buyer or the relevant regulatory authority may conduct spot checks on process assurance items.