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PEOPLE'S REPUBLIC OF CHINA**

GB/T 17432-2012

**Methods of sampling for analyzing the chemical composition of
wrought aluminum and aluminum alloys**
(English Translation)

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB/T 17432-1998 "Methods of Sampling for Analyzing the Chemical Composition of Wrought Aluminum and Aluminum Alloy". Compared with GB/T 17432-1998, the main changes in this Standard are as follows.

- in the scope, it defines that "the preparation of specimens for chemical composition analysis of cast aluminum alloy ingots, aluminum master alloys, other metal and alloy products or semi-finished products may also refer to the methods specified in this Standard";
- added the requirements for "reagents" and "major tools and equipment";
- deleted "3.1.3 The purchaser can use the tensile specimen after breaking as the selected sample" in GB/T 17432-1998;
- supplemented the relevant requirements for sample selection and specimen preparation.

This Standard uses redrafting method to refer to ASTM E55.1991 (1996) "Sampling Wrought Nonferrous Metals and Alloys for Determination of Chemical Composition", ASTM E716.1994 (2002) "Sampling Aluminum and Aluminum Alloys for

Spectrochemical Analysis" and EN 14361.2004 "Aluminium and aluminium alloys - Chemical analysis - Sampling from metal melts". The degree of conformity with ASTM E55.1991 (1996), ASTM E716.1994 (2002) and EN14361.2004 is non-equivalent.

This Standard shall be under the jurisdiction of National Technical Committee on Non-ferrous Metals of Standardization Administration of China (SAC/TC 243).

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Methods for sampling for analyzing the chemical composition of wrought aluminum and aluminum alloys

1 Scope

This Standard specifies terms and definitions of sampling methods for chemical composition analysis of wrought aluminum and aluminum alloys, reagents, main tools and equipment, sample selection, specimen preparation, storage and resampling.

This Standard applies to the preparation method of specimens for chemical composition analysis of deformed aluminum and aluminum alloy products and semi-finished products. The preparation of specimens for chemical composition analysis of cast aluminum alloy ingots, aluminum master alloys, other metal and alloy products or semi-finished products may also refer to the methods specified in this Standard.

2 Normative references

The following referenced documents are indispensable for the application 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 3190, Wrought aluminium and aluminium alloys - Chemical composition limits

GB/T 8005.1, Aluminium and aluminium alloy terms and definitions - Part 1.

Product and method of processing and treatment

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 8005.1 and GB/T 8005.2 apply.

5.1 Sampling spoon. The surface is firmly attached, uniform and complete, clean (no

metal residues and other contaminants), dry and heat-resistant (during the sampling process, the film will not fall off due to high temperature) coating.

5.2 Sampling mold. It is made of steel or cast iron. There is no pores, rust and residue

on the surface of the inner cavity.

5.3 Sample preparation equipment. Clean drills, lathes, milling machines, tools, etc.

Cemented carbide tools shall be used to prepare samples.

6.1.1 When casting (or casting-rolling) is stable, use the sampling scoop (5.1) or a

skimming tool to push away any scum in the sampling area in the launder. Immediately insert the sampling spoon (5.1) diagonally into the cleaning area below the liquid level of the launder. Quickly stir. When the sampling scoop (5.1) reaches the melt temperature, scoop and retract the sample. The molten metal scooped by the sampling scoop (5.1) shall not come into contact with solid metal, slag, moisture, iron or dust.

6.1.4 At least one sample is drawn per melt. For continuous casting, at least one sample

shall be taken per shift.

6.1.5 To obtain samples with uniform and representative composition (representing the

chemical composition of the whole furnace), the manufacturer shall formulate

appropriate sampling procedures.

6.3 Arbitration sampling

During the arbitration analysis of chemical composition, samples shall be taken on the product or semi-finished product.

7.1.1 The specimen preparation for chemical analysis is performed according to Table

2.

7.2.1 From the sample or specimen blank, select the specimen analysis surface that can

represent its overall chemical composition.

7.2.2 Oxidation of the specimen due to overheating of processing shall be avoided.

When preparing high-purity aluminum or relatively viscous metal or alloy specimens, anhydrous ethanol (4.2) can be used as a cooling lubricant. To prevent the specimens from being discarded due to overheating, a sufficient number of specimens shall be prepared.

8.1 If it needs to be sealed and moisture-proof, a paper specimen bag or card box can

be used to store the specimen.

8.2 To prevent oxidation of the specimen, prevent the specimen from being corroded

by the atmosphere or contact with paper and carton to cause pollution, the specimen that needs to be stored for a long time shall be stored in a ground glass bottle.

9.1 If there is any objection to the sample, any party may request to re-sample according

to the above-mentioned relevant requirements when both the supplier and the buyer are present.

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