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

GB/T 13815-2008

Replacing GB/T 13815-2008

**Aluminium base brazing filler metals - Part 1: Solid brazing filler
metals**

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 1 of GB/T 13815 "Aluminum-based brazing filler metals". GB/T 13815 has been published in the following parts.

--- Part 1: Solid brazing filler metals.

This document replaces GB/T 13815-2008 "Aluminum-based brazing filler metals". Compared with GB/T 13815-2008, except for structural adjustments and editorial changes, in addition to the above, the main technical changes are as follows.

--- Deleted the solder classification table (see 3.1 of the 2008 edition);

--- Added a solder model and its chemical composition requirements. BA167SiCu (see Table 1);

--- Changed the chemical composition of some solders. Mg content in BA186SiCu, Si content in BA190SiZn (see Table 1, 2008

Table 2 of the version);

- Added some product form requirements (see 5.1);
 - Added the requirements for "surface quality" of aluminum solder and its test methods (see 5.3 and 6.2);
 - Added the size requirements for foil strip solder with nominal width >.200mm (see 5.4.1);
 - Added the dimensional requirements for foil strip solder with a nominal thickness of
- Introduction Aluminum-based brazing alloys are key connecting materials for core components of the manufacturing industry. They have the advantages of low brazing temperature, good fluidity, easy processing, excellent crack resistance and with the increasing awareness of energy conservation, emission reduction and green environmental protection, "replacing copper with aluminum" in lightweight structural design is in line with the national sustainable development Therefore, aluminum-based brazing filler metals are widely used in the fields of electronics, petrochemicals, aerospace, refrigeration, etc.

The material is often used for brazing connection of aluminum and aluminum alloy, aluminum alloy and other metals. Its quality directly affects the performance and connection quality of the product.

The formulation of its product standards is of great significance.

Brazing is one of the key basic technologies in the manufacturing industry. As the manufacturing industry develops towards green, intelligent and high-end directions, the demand for brazing materials the technology has put forward new demands and higher challenges. Conventional solid brazing materials such as wire and sheet can no longer meet the market demand.

The new composite brazing materials such as flux core brazing materials, flux coated brazing materials, paste brazing materials, etc. have great development potential.

"Brass Filler Metals" is a universal product standard for brazing filler metals and is intended to consist of the following parts.

- Part 1: Solid brazing filler metals. The purpose is to specify the requirements for solid aluminum-based brazing filler metal products for brazing.
- Part 2: Flux-cored brazing filler metals. The purpose is to specify the requirements for flux-cored aluminum-based brazing filler metals for brazing.
- Part 3: Coated brazing filler metals. The purpose is to specify the requirements for coated aluminum-based brazing filler metal products suitable for brazing.
- Part 4: Paste brazing filler metals. The purpose is to specify the requirements for paste aluminum-based brazing filler metal products suitable for brazing.

GB/T 13815 was first independently formulated in 1992 and revised in 2008. Its technical content has always been at the international leading level.

GB/T 13815-2008 has been issued and implemented for more than ten years. During this period, the preparation technology of aluminum-based brazing alloys in my country has been improved and new products have been developed and applied.

It has played an important role in promoting the use of high-quality key connections in basic manufacturing equipment such as lightweight structures, home appliances, refrigeration and other industries.

Materials-aluminum-based brazing filler metals have a more significant significance. At present, with the rapid progress of non-ferrous material research and metallurgical technology, research and development New products have put forward higher requirements for intelligence, functionality, and miniaturization.

This revision of GB/T 13815 focuses on the technical requirements for high-end equipment manufacturing and adds more miniaturized foil and strip solder.

Dimensional indicators to meet the needs of integrated, functional and miniaturized products. With the changes in solder composition and analysis technology, some the main elements, impurity elements content and melting temperature range of the solder chemical composition are added, and new types of solder for engineering applications are added.

The chemical composition requirements are more reasonable, and the ingredient list is more in line with the product's own requirements, thereby promoting the improvement and quality of my country's aluminum-based solid brazing filler metal products.

improvement.

Aluminium based brazing filler metals Part 1: Solid brazing filler metals

1 Scope

This document specifies the model, technical requirements, test methods, rounding rules, inspection rules, packaging, marking, Quality certification requirements, etc.

This document is applicable to aluminum-based solid brazing filler metals (hereinafter referred to as aluminum brazing filler metals) used in brazing methods.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 1480 Metal powder dry sieving method for particle size determination GB/T

8170-2008 Rules for rounding off values and expression and determination of limit values
GB/T 11363 Brazing joint strength test method GB/T 11364 Test method for wettability of
solder GB/T 19077 Particle size distribution laser diffraction method

3 Terms and definitions

There are no terms or definitions that require definition in this document.

4.1 Model compilation method

Aluminum brazing filler metal models consist of two parts.

- a) The first part uses "B" to indicate brazing filler metal.
- b) The second part consists of the chemical element symbols of the main alloy components. The first chemical element symbol Al represents the aluminum solder.

For basic components, the nominal mass fraction of Al shall be indicated after the element symbol and the value shall be an integer.

- c) The symbols of other elements are arranged in descending order according to their mass fractions. When several elements have the same mass fraction, they are arranged in order of their atomic mass fractions.

Arranged in ordinal order.

- d) Elements with a mass fraction of less than 1% do not need to be listed in the model. If an element is a key component of aluminum brazing filler metal and must be listed, the chemical element symbol is indicated in brackets.

4.2 Model Examples

The comparison of aluminum solder types in this document and other relevant standards is shown in Appendix A. Examples of aluminum solder types in this document are as follows.