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

GB/T 13815.1-2025

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

铝基钎料 第1部分：实心钎料

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Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 Model	1
5 Technical Requirements	2
6 Test methods	5
7 Amendment Rules	5
8 Inspection Rules	5
7 References	8

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.

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 5.2);
- 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 < 0.2mm (see 5.4.2);

0.05 mm (see 5.4.1);

--- Changed the recommended diameter requirements for rod and wire aluminum brazing filler metals (see 5.4.2, 5.4.3, 5.2.2,

5.2.3 of the.2008 edition);

1 Scope

Part 1 of China's standard for aluminium base brazing filler metals, covering the solid forms - the wire, rod, strip and preforms used to braze aluminium. It is the companion of the nickel filler standard GB/T 10859.1 and covers a quite different problem. It specifies the model designation, the technical requirements, the test methods, the rounding rules, the inspection rules, and the packaging, marking and quality certification requirements for solid aluminium base brazing filler metals. Brazing aluminium is difficult for a reason that has nothing to do with the filler: aluminium melts at around 660 degrees, and any filler that is going to join it without melting it must melt below that - which leaves a very narrow window, since the useful aluminium-silicon brazing alloys melt in the high 570s to low 600s. The gap between the brazing temperature and the melting point of the parent metal is a few tens of degrees, which means the furnace or torch temperature has to be controlled far more tightly than in any other brazing, and it means the composition of the filler is not a matter of preference: the silicon content sets the melting range, and a filler a little outside specification either will not flow or will melt the work. The other difficulty is the oxide. Aluminium carries a tenacious oxide film that reforms instantly and that solder and braze will not wet, so the filler must be used with a flux or in a vacuum or controlled atmosphere, and the standard's requirements on cleanliness and surface condition follow from that rather than from appearance. The requirements therefore cover the chemical composition and the solidus and liquidus temperatures, the forms and dimensions and their tolerances, the surface condition, and the model designation by which a filler is called up on a drawing. Issued on 28 March 2025 and in force since 1 October 2025.

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 Models

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: