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

GB/T 3954-2014

**Aluminium and aluminium alloys rod for electrical purpose
(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 3954-2008 Aluminium and aluminium alloys rod for electrical purpose.

Compared with GB/T 3954-2008, the main modifications in this Standard are as follows.

- added product designations. 1350, 1370, 8A07, 5030; and specified its physical and chemical properties;
- specified the state of each designation of products;
- made chemical composition of each designation of products as determination reference, unless otherwise agreed;
- deleted the description on product model from the text; added Annex A "Comparison on product model";
- added Annex B "Comparison on resistivity and volume conductivity".

This Standard shall be under the jurisdiction of National Technical Committee on Nonferrous Metals of Standardization Administration of China (SAC/TC

243).

Main drafting organizations of this Standard. Baotou Aluminum Co., Ltd., General Purpose Cable (China), Yunnan Aluminum Industry Co., Ltd., CLP Investment Ningxia Qingtongxia Energy Aluminum Group Co., Ltd.

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Aluminum and aluminum
alloys rod for electrical purpose

1 Scope

This Standard specifies the requirements, test methods, inspection rules, marks, packaging, storage, quality certificate and purchase order (or contract) of aluminum and aluminum alloys rod for electrical purpose.

This Standard is applicable to continuous casting and rolling electric aluminum and aluminum alloys rod for electrical purpose of drawn wire, cable conductive wire with round aluminum wire, aluminum wire and other electrical aluminum conductor.

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 3048.2, Test methods for electrical properties of electric cables and wires - Part 2. Test of electrical resistivity of metallic materials

GB/T 3190, Wrought aluminium and aluminium alloy - Chemical composition

GB/T 4909.2, Test methods for bare wires - Part 2.Measurement of dimensions

GB/T 4909.3, Test methods for bare wires - Part 3.Tensile test

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

GB/T 20975 (all parts), Methods for chemical analysis of aluminium and
The measurements of tensile strength and elongation rate shall comply with the provisions of GB/T 4909.3.

4.4 Resistivity

The resistivity test shall be carried out according to the provisions of GB/T 3048.2.

4.5 Heat resistance

The heat resistance inspection method of aluminum and aluminum alloys rod for electrical purpose with designation of 8A07 shall be carried out according to the following steps.

- a) insulate the 8A07 aluminum alloy rod in the insulation furnace for 1h according to the requirements of Table 5;
 - b) inspect the tensile strength after naturally cooling the insulated aluminum alloy rod to room temperature;
 - c) 8A07 aluminum alloy rod heat resistance (tensile strength residual rate).
- the same designation shall be in accordance with the ratio BETWEEN tensile strength after method a) insulation treatment AND un-insulated

tensile strength under natural state after production.

4.6 Appearance quality

The appearance quality shall be visually inspected.

4.7 Numerical value rounding and determination

The numerical value rounding and determination shall be carried out according to the provisions of GB/T 8170.

5.1.1 The aluminum and aluminum alloys rod for electrical purpose shall be

inspected by the supplier's technical supervision department to ensure that the product quality shall be in accordance with the provisions of this Standard (or purchase contract). And fill in the quality certificate.

5.1.2 The purchaser shall inspect the product received according to the

provisions of this Standard. If the inspection results do not comply with the provisions of this Standard and purchase order, the purchaser shall put forward to the supplier within one month since the date of receipt of the

5.5.2 If any indicator in tensile strength, elongation, resistivity and 8A07

aluminum alloy rod heat resistance fails, for big roll, it shall extract double samples from the roll represented by the unqualified sample to repeat the test.

If there is still a sample failed, then this roll shall be determined as unqualified.

For small roll, it shall extract double samples from the roll represented by the unqualified sample to repeat the test. If there is still a sample failed, then these 2 rolls shall be determined as unqualified. However, the inspection by rolls shall be carried out after agreement by the supplier and the purchaser.

Qualified delivery.

5.5.3 When the size deviation is unqualified, this roll shall be determined as

unqualified.