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(JCBA/JSA)

**Measuring methods for electrical
resistivity and conductivity of
non-ferrous materials**

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Mita Avanti, 3-11-28, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

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Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Copper and Brass Association (JCBA)/Japanese Standards Association (JSA) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act. This edition replaces the previous edition (**JIS H 0505 : 1975**), which has been technically revised.

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Measuring methods for electrical resistivity and conductivity of non-ferrous materials

1 Scope

This Japanese Industrial Standard specifies the measuring methods for the volume resistivity and electric conductivity of conductors of non-ferrous metal materials, mainly sheets/plates, strips, pipes/tubes and rods/bars, excluding wires. Resistance materials are excluded.

2 Normative references

Part or all of the provisions of the following standards, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS H 0500 *Glossary of terms used in wrought copper and copper alloys*

JIS B 7502 *Micrometers*

JIS B 7512 *Steel tape measures*

JIS Z 8807 *Methods of measuring density and specific gravity of solid*

3 Terms and definitions

For the purpose of this Standard, the following term and definition, and those given in JIS H 0500 apply.

3.1

electrical conductivity

index of electricity conducting ability of a material in comparison with that of IACS (International Annealed Copper Standard)

Note 1 to entry The electrical conductivity is obtained by dividing the volume resistivity of IACS by the volume resistivity of the relevant material, which is expressed in percentage (%IACS).

Note 2 to entry See Annex A for the physical property values of IACS.

(Source: JIS H 0500 : 1998, No. 3200, modified)

4 Methods for measurement

The methods for measurement of volume resistivity and electrical conductivity shall be either of the following.

- a) **Average sectional area method** Calculation method for volume resistivity and electrical conductivity, using the electrical resistance and average sectional area of test piece, and the length of test piece subjected to the electrical resistance meas-