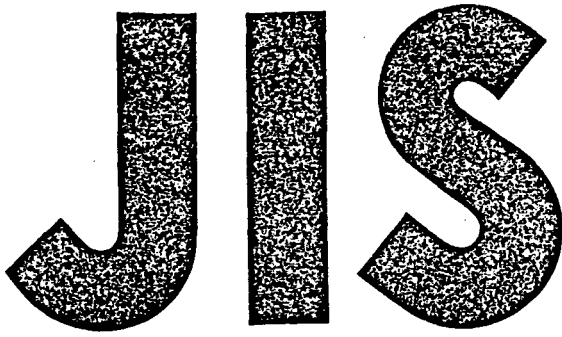




JAPANESE INDUSTRIAL STANDARD

Measuring Methods for Electrical Resistivity
and Conductivity of Non-Ferrous Materials

JIS H 0505-1975

Translation without guarantee
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Translated
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Measuring Methods for Electrical Resistivity
and Conductivity of Non-Ferrous Materials

H 0505-1975
(Reaffirmed: 1979)

1. Scope

This Japanese Industrial Standard specifies measuring methods for electrical volume resistivity and conductivity of sheet and plate, strip, pipe and tube, rod and bar, and conductors excepting wires, of non-ferrous materials. Provided that the resistance materials shall be excluded therefrom.

2. Definitions

The definitions of principal terms shall be as follows:

- (1) volume resistivity Electric resistance value of material having unit length and unit sectional area at 20°C to be expressed in $\mu\Omega\text{cm}$.
- (2) electric conductivity Ratio of electric conductivity of material having unit length and unit sectional area at 20°C to that of standard mild copper to be expressed in percentage.

The electric conductivity shall be computed so that the volume resistivity of standard mild copper is divided by volume resistivity of material and shall be expressed in percentage.

The standard mild copper shall have the electric resistance, density, linear expansion coefficient and the constant mass-temperature coefficient of electric resistance together shown in the following respective items at 20°C.

Applicable Standard:

JIS Z 8807-Measuring Methods for Specific Gravity of Solid

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- (a) electric resistance $1/58 \Omega = 0.017241 \Omega$ per m length per mm^2 area at uniform cross-sectional area of every part.
- (b) density 8.89 g per cm^3
- (c) linear expansion coefficient 0.000017 per $^{\circ}\text{C}$
- (d) constant mass-temperature coefficient of electric resistance 0.00393 per $^{\circ}\text{C}$

Remarks 1. The values for electric resistance, density, linear expansion coefficient of standard mild copper and constant mass-temperature coefficient of electric resistance are in accordance with the standards of standard mild copper established in the International Electrotechnical Commission (IEC).

2. The volume resistivity of standard mild copper is to be $1.7241 \mu\Omega \text{ cm}$.

3. Method for Measurement

The volume resistivity and electric conductivity shall be obtained in accordance with the average sectional area method to compute from the electric resistance, average sectional area of the test piece and the length of electric resistance intermeasurement or in accordance with the gravimetric method to compute from the electric resistance, mass, specific gravity of the test piece, the length of the piece and the length of electric resistance intermeasurement.