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(IEC 61340-2-3 : 2000)

**Electrostatics—Methods of test for  
determining the resistance and  
resistivity of solid planar materials  
used to avoid electrostatic charge  
accumulation**

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## Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standard Law:

This Standard has been made based on IEC 61340-2-3:2000 *Electrostatics—Part 2-3 : Methods of test for determining the resistance and resistivity of solid planar materials used to avoid electrostatic charge accumulation* for the purposes of making it easier to compare this Standard with International Standard; to prepare Japanese Industrial Standard conforming with International Standard; and to propose a draft of an International Standard which is based on Japanese Industrial Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

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## Electrostatics—Methods of test for determining the resistance and resistivity of solid planar materials used to avoid electrostatic charge accumulation

**Introduction** This Japanese Industrial Standard has been prepared based on the first edition of IEC 61340-2-3 *Electrostatics—Part 2-3 : Methods of test for determining the resistance and resistivity of solid planar materials used to avoid electrostatic charge accumulation* published in 2000 without modifying the technical contents.

Portions underlined with dots are the matters not stated in the original International Standard.

Measurements of resistances and related calculations of resistivities belong to the fundamental objectives of electrical measuring techniques along with measurements of voltage and current.

Resistivity is the electrical characteristic having the widest range, extending over some thirty orders of magnitude from the most conductive metal to almost perfect insulators.

The basis is Ohm's law and is valid for d.c. current and instantaneous values of a.c. current in electron conductors (metals, carbon, etc.). Values of resistance measurements using a.c. current can be influenced by capacitive/inductive reactance, depending on the frequency. Thus, existing national and international standards dealing with resistance measurements of solid materials normally require the application of d.c. current.

Most non-metal materials such as plastics are classified as polymers and ion conductors. The transport of charges can be dependent upon the applied electrical field strength during the measurement. Beside the measuring current, there exists a charging current that polarizes and/or electrostatically charges the material, indicated by an asymptotic decay of the measuring current with time and causing an apparent change in resistance. If this effect is observed, it will be advisable to repeat the measurement immediately after a definite electrification time has elapsed using the reverse polarity for the measuring current and averaging both obtained values.

**1 Scope** This International Standard describes test methods for the determination of the electrical resistance and resistivity of solid materials in the range from  $10^4 \Omega$  to  $10^{12} \Omega$  used to avoid electrostatic charge accumulation.

It takes account of existing IEC/ISO standards and other published information, and gives recommendations and guidelines on the appropriate method.

**NOTE :** The International Standard corresponding to this Standard is as follows.

In addition, symbols which denote the degree of correspondence in the