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Electrostatics –
Part 2-1: Measurement methods – Ability of materials and products to dissipate static electric charge

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Electrostatics –
Part 2-1: Measurement methods – Ability of materials and products to dissipate static electric charge



IEC 61340-2-1:2015-08+AMD1:2022-06 CSV(en)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTROSTATICS –

Part 2-1: Measurement methods – Ability of materials and products to dissipate static electric charge

FOREWORD

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IEC 61340-2-1 edition 2.1 contains the second edition (2015-08) [documents 101/446/CDV and 101/462/RVC] and its amendment 1 (2022-06) [documents 101/639/CDV and 101/651/RVC].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 61340-2-1 has been prepared by IEC technical committee 101: Electrostatics.

This second edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) the first edition supported requirements in IEC TR 61340-5-1, but with the revision of IEC TR 61340-5-1 into an International Standard, this support is no longer required; references to IEC 61340-5-1[1][1] have been removed;
b) the introduction gives additional information on when charge decay time measurements are appropriate, and the applications for which each of the two test methods are best suited;
c) procedures for performance verification of measuring instruments for the corona charging method have been added.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

It has the status of a horizontal standard in accordance with IEC Guide 108[3].

A list of all the parts in the IEC 61340 series, published under the general title *Electrostatics*, can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under webstore.iec.ch in the data related to the specific publication. At this date, the publication will be

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- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

1 Numbers in square brackets refer to the Bibliography.

INTRODUCTION

Measurements of the rate of dissipation of static charge belong to the essential measurement techniques in the field of electrostatics.

For homogeneous conductive materials, this property can be evaluated indirectly by measuring resistance or resistivity parameters. Care should be exercised when determining the homogeneity of materials, as some materials that appear homogenous do exhibit non−homogeneous electrical characteristics. If the homogeneity of materials is not known and cannot be otherwise verified, it is possible that resistance measurements ~~may~~ will not be reliable or ~~may~~ will not give enough information. It is also possible that resistance measurements ~~may also~~ will not be reliable when evaluating materials in the dissipative or insulative range and especially for high ohmic materials ~~including~~ that include conductive fibres (e.g. textiles with a metallic grid). In such cases, the rate of dissipation of static charge should be measured directly.

ELECTROSTATICS –

Part 2-1: Measurement methods – Ability of materials and products to dissipate static electric charge

1 Scope

This part of IEC 61340 describes test methods for measuring the rate of dissipation of static charge of insulating and static dissipative materials and products.

It includes a generic description of test methods and detailed test procedures for specific applications.

The two test methods for measuring charge decay time, one using corona charging and one using a charged metal plate are different and it is possible that they ~~may~~ will not give equivalent results. Nevertheless, each method has a range of applications for which it is best suited. The corona charging method is suitable for evaluating the ability of materials, ~~e.g.~~ for example textiles, packaging, ~~etc.,~~ to dissipate charge from their own surfaces. The charged metal plate method is suitable for evaluating the ability of materials and objects such as gloves, finger cots, hand tools, ~~etc.~~ to dissipate charge from conductive objects placed on or in contact with them. It is possible that the charged plate method ~~may~~ will not be suitable for evaluating the ability of materials to dissipate charge from their own surfaces.

In addition to its general application, this horizontal standard is also intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 108.

One of the responsibilities of a technical committee is, wherever applicable, to make use of horizontal standards in the preparation of its publications. The contents of this horizontal standard shall not apply unless specifically referred to or included in the relevant publications.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61010-1, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*

IEC 61010-2-030, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-030: Particular requirements for equipment having testing or measuring circuits*

IEC 61340-4-6, *Electrostatics – Part 4-6: Standard test methods for specific applications – Wrist straps*

IEC 61340-4-7, *Electrostatics – Part 4-7: Standard test methods for specific applications – Ionization*

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