

Electrostatics —

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

The European Standard EN 61340-2-1:2002 has the status of a
British Standard

ICS 17.220.99; 29.020

National foreword

This British Standard is the official English language version of EN 61340-2-1:2002. It is identical with IEC 61340-2-1:2002.

The UK participation in its preparation was entrusted to Technical Committee GEL/101, Electrostatics, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Part 2-1: Measurement methods -
Ability of materials and products to dissipate static electric charge
(IEC 61340-2-1:2002)

Electrostatique
Partie 2-1: Méthodes de mesure -
Capacité des matériaux et des produits
à dissiper des charges électrostatiques
(CEI 61340-2-1:2002)

Elektrostatik
Teil 2-1: Messverfahren -
Fähigkeit von Materialien und
Erzeugnissen, elektrostatische
Ladungen abzuleiten
(IEC 61340-2-1:2002)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Foreword

The text of document 101/138/FDIS, future edition 1 of IEC 61340-2-1, prepared by IEC TC 101, Electrostatics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61340-2-1 on 2002-09-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
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- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-09-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annexes A and ZA are normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61340-2-1:2002 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61340-5-2	NOTE	Harmonized as EN 61340-5-2:2001 (not modified).
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CONTENTS

INTRODUCTION.....	4
1 Scope.....	5
2 Normative references	5
3 Definitions	5
4 Method of measurement of charge decay	6
4.1 Principles	6
4.2 Environmental conditions	6
4.3 Apparatus for using corona charging	7
4.3.1 Physical design features.....	7
4.3.2 Containment of test material.....	8
4.3.3 Corona charge deposition.....	8
4.3.4 Fieldmeter	9
4.4 Apparatus for using a charged metal plate.....	9
4.4.1 Physical design features.....	9
4.4.2 Charge decay time measurements (t_{sd}).....	10
5 Sampling	11
Annex A (normative) Test methods and procedures	12
Annex ZA (normative) Normative references to international publications with their corresponding European publications	18
Bibliography.....	19

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 by measuring resistance or resistivity parameters.

For materials in the dissipative or insulative range and especially for high ohmic materials including conductive fibres (e.g. textiles with a metallic grid), resistance measurements may not be reliable enough or may not give enough information and the rate of dissipation of static charge needs to be measured.

For many non-metal materials, such as plastics, the transport of charges is dependent on the applied electrical field strength during the measurement, for example, a measurement of resistance will show a non-linear dependence on applied test voltage. There are also problems with spatial inhomogeneity with measurement methods that use contacting electrodes. These points are covered by measuring the rate of dissipation of charge.

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.

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.

IEC 61340-5-1:1998, *Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – General requirements*¹

ISO 2859-0:1995, *Sampling procedures for inspection by attributes – Part 0: Introduction to the ISO 2859 attribute sampling system*

ISO/TR 13425:1995, *Guide for the selection of statistical methods in standardization and specification*

3 Definitions

For the purpose of this part of IEC 61340, the following definitions apply.

3.1

charge decay

migration of charge across or through a material leading to a reduction of charge density or surface potential at the area where the charge was deposited

3.2

charge decay time constant

time required for the local charge density or surface potential to fall to 1/e of its initial value (e being the base of the natural logarithms 2,7183)

3.3

charged plate monitor (CPM)

instrument using a charged metal plate of a certain capacitance and geometry which is going to be discharged in order to measure charge dissipation/neutralization properties of products or materials

¹ For the interpretation of this publication see IEC 61340-5-2 given in the bibliography.