Electrostatics - Part 2-3: Methods of test for determining the resistance and resistivity of solid materials used to avoid electrostatic charge accumulation

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NATIONAL FOREWORD

See Eesti standard EVS-EN 61340-2-3:2016 sisaldab Euroopa standardi EN 61340-2-3:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 61340-2-3:2016 consists of the English text of the European standard EN 61340-2-3:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 14.10.2016.	Date of Availability of the European standard is 14.10.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Electrostatics - Part 2-3: Methods of test for determining the resistance and resistivity of solid materials used to avoid electrostatic charge accumulation (IEC 61340-2-3:2016)

Électrostatique - Partie 2-3: Méthodes d'essais pour la détermination de la résistance et de la résistivité des matériaux solides destinés à éviter les charges électrostatiques
(IEC 61340-2-3:2016)

Elektrostatik - Teil 2-3: Prüfverfahren zur Bestimmung des Widerstandes und des spezifischen Widerstandes von festen Werkstoffen, die zur Vermeidung elektrostatischer Aufladung verwendet werden
(IEC 61340-2-3:2016)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 101/470/CDV, future edition 2 of IEC 61340-2-3, prepared by IEC/TC 101 "Electrostatics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61340-2-3:2016.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2017-04-28
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2019-07-28

This document supersedes EN 61340-2-3:2000.

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Endorsement notice

The text of the International Standard IEC 61340-2-3:2016 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 62631-3-1	-	Dielectric and resistive properties of solid insulating materials - Part 3-1 Determination of resistive properties (DC Methods) - Volume resistance and volume resistivity, general method	EN 62631-3-1	-
IEC 62631-3-2	-	Dielectric and resistive properties of solid insulating materials - Part 3-2 Determination of resistive properties (DC Methods) - Surface resistance and surface resistivity	EN 62631-3-2	-
IEC 62631-3-3	-	Dielectric and resistive properties of solid insulating materials - Part 3-3: Determination of resistive properties (DC methods) - Insulation resistance	EN 62631-3-3	-
ISO 1853	-	Conducting and dissipative rubbers, vulcanized or thermoplastic - Measurement of resistivity	-	-
ISO 2951	-	Rubber, vulcanized or thermoplastic - Determination of insulation resistance	-	-
ISO 3915	-	Plastics - Measurement of resistivity of conductive plastics	EN ISO 3915	-
ISO 7619-1	-	Rubber, vulcanized or thermoplastic - Determination of indentation hardness - Part-1: Durometer method (Shore hardness)	-	-

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INTRODUCTION

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 DC current and instantaneous values of AC current in electron conductors (metals, carbon, etc.). Values of resistance measurements using AC 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 DC 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.