

STN	Plasty Meranie merného odporu vodivých plastov (ISO 3915: 2022)	STN EN ISO 3915 64 0131
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Plastics - Measurement of resistivity of conductive plastics (ISO 3915:2022)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/22

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Plastics - Measurement of resistivity of conductive plastics (ISO 3915:2022)

Plastiques - Mesurage de la résistivité des plastiques
conducteurs (ISO 3915:2022)

Kunststoffe - Messung des spezifischen elektrischen
Widerstands von leitfähigen Kunststoffen (ISO
3915:2022)

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EN ISO 3915:2022 (E)

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European foreword

This document (EN ISO 3915:2022) has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with Technical Committee CEN/TC 249 "Plastics" the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2022, and conflicting national standards shall be withdrawn at the latest by September 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 3915:1999.

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The text of ISO 3915:2022 has been approved by CEN as EN ISO 3915:2022 without any modification.

INTERNATIONAL STANDARD

ISO 3915

Second edition
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Plastics — Measurement of resistivity of conductive plastics

Plastiques — Mesurage de la résistivité des plastiques conducteurs



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ISO 3915:2022(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 5, *Physical-chemical properties*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 249, *Plastics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 3915:1981), which has been technically revised.

The main changes compared to the previous edition are as follows:

- the apparatus specifications have been revised;
- the document has been editorially revised.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

0.1 General

The method specified in this document is technically similar to that specified for rubber in ISO 1853.

However, it differs from that method in certain details, especially those associated with the greater stiffness of the plastic samples, and in particular in the limitation on specimen width. It takes into account two problems encountered in the measurement of resistivity of conductive plastics, namely the sensitivity of these materials to their temperature-history and strain-history, and the difficulty of making adequate electrical contact with them.

The prescribed width of the specimen is mandatory for reference purposes; however, a wider strip may be used, with correspondingly wider electrodes. There is a danger in using a wide strip, if the strip is slightly twisted and at the same time somewhat non-uniform in its resistivity. It is then possible to obtain erroneous results; the potential electrode nearer to the positive current electrode can even be found to be negative with respect to the other potential electrode.

0.2 Effect of temperature changes and strain on conductive plastics

As mentioned, the resistance of these materials is sensitive to their temperature-history and strain-history. The relationships are complex and arise from the kinetic energy and structural configuration of the carbon particles in the polymer.

The resistivity may be increased by the effects of strain produced by (or subsequent to) removal from the mould, and a treatment is described for reducing specimens to a constant strain and temperature condition before measurements are carried out on them. Specimens are also cut in two perpendicular directions to assess anisotropy.

0.3 Electrode systems (see [5.3](#))

Certain types of electrode, when applied to these polymers, have a contact resistance which can be many thousand times greater than the intrinsic resistance of the specimen. Dry contacts under light pressure or point contacts give very high resistances. However, the present test method eliminates the effects of contact resistances unless these are excessively high. (In such a case, no result, rather than a wrong one, is generally obtained.)

Plastics — Measurement of resistivity of conductive plastics

1 Scope

This document specifies the requirements for the laboratory testing of the resistivity of specially prepared specimens of plastics rendered conductive by the inclusion of conductive fillers or suitable modification of the structure. The test is applicable to materials of resistivity less than $10^6 \Omega \cdot \text{cm}$ ($10^4 \Omega \cdot \text{m}$).

The result is not strictly a volume resistivity, because of surface conduction, but the effects of the latter are generally negligible.

2 Normative references

There are no normative references in this document.

koniec náhľadu – text ďalej pokračuje v platenej verzii STN