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Rubber, vulcanized rubber — Determination of insulation resistance

Caoutchouc vulcanisé ou thermoplastique — Détermination de la résistance d'isolement

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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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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

This third edition cancels and replaces the second edition (ISO 2951:2012), which has been technically revised.

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

— The normative references have been updated in Clause 2;

— The calibration schedule has been added as Annex B.

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.

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Introduction

This document specifies an empirical method that gives a value for insulation resistance which includes, without discrimination, both volume and surface resistance. This value can be used for the comparison of the quality of different insulating rubbers. For general principles regarding measuring resistance, general effects of temperature and humidity, applied voltage and time of electrification, see IEC 62631-3-1, IEC 62631-3-2 and IEC 62631-3-3.

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Rubber, vulcanized rubber — Determination of insulation resistance

WARNING 1 — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to determine the applicability of any other restrictions.

WARNING 2 — Certain procedures specified in this document might involve the use or generation of substances, or the generation of waste, that could constitute a local environmental hazard. Reference should be made to appropriate documentation on safe handling and disposal after use.

1 Scope

This document specifies a method for the determination of the insulation resistance of vulcanized and thermoplastic rubbers without discrimination between the volume and surface resistances involved. This method is applicable only to the test pieces with a resistance greater than 10^8 Ω.

NOTE Methods of test for test pieces with a lower resistance are described in ISO 1853 and ISO 2878.

Because the test pieces are simply and easily prepared, this method is particularly useful for rapidly determining values which will give a general indication of quality when great accuracy is not required.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 18899:2013, *Rubber — Guide to the calibration of test equipment*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
insulation resistance
<between two electrodes which are in contact with, or embedded in, a test piece> ratio of the direct voltage applied to the electrodes to the total current between them at a given time after the application of that voltage

Note 1 to entry: It is dependent upon both the volume and surface resistances of the test piece and is a function of the shape of the test piece.

4 Test equipment

The insulation resistance shall be determined by measuring the current and voltage. Brief descriptions of suitable equipment are given in IEC 62631-3-3.

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