INTERNATIONAL STANDARD

ISO 2951

Second edition
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Rubber, vulcanized or thermoplastic — Determination of insulation resistance

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

Reference number
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 2951 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

This second edition cancels and replaces the first edition (ISO 2951:1974), which has been technically revised as follows:

— the title and scope have been modified to include thermoplastic rubbers;

— the normative references have been updated;

— the instructions in old subclause 6.2 (now 5.3) concerning rigid materials have been deleted;

— the number of test pieces tested is now “more than three” (see 6.5), as opposed to “three” in the previous edition;

— the test report has been updated.

Introduction

This International Standard 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 60093 and IEC 60167[3].

Rubber, vulcanized or thermoplastic — Determination of insulation resistance

1 Scope

This International Standard 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 should only be used for 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 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 60093, *Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials*

3 Terms and definitions

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

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 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 either by a bridge method or by measuring the current and voltage. Brief descriptions of suitable equipment are given in IEC 60093.

Suitable equipment shall be provided to supply a voltage of (500 ± 10) V d.c., which is steady enough so that the charging current appearing when the voltage varies is negligible compared with the current flowing through the test piece.

5 Electrodes

5.1 General

The electrodes shall be made of such a material that they will not corrode under the conditions of test or react with the material being tested. Suitable electrodes are described in 5.2 and 5.3.