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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 40719-2021

**Rubber, vulcanized or thermoplastic - Determination of volume
and/or surface resistivity**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

The translation method used in this document is equivalent to ISO 14309.2019 "Volume and/or Surface Resistivity of Vulcanized Rubber or Thermoplastic Rubber

Determination".

The Chinese documents that have consistent correspondence with the normatively cited international documents in this document are as follows.

---GB/T 2941-2006 Rubber physical test methods, general procedures for sample preparation and adjustment (ISO 23529.2004, IDT);

---GB/T 9881-2008 rubber terminology (ISO 1382.2008, MOD).

Introduction

Because rubber has physical properties that other materials do not have, it can be used in combination with other materials to meet the expected product requirements, so

Rubber materials are widely used in many industries as auxiliary parts of products or other products. Under normal circumstances, rubber is considered to be an insulating material

It is also possible to add a certain amount of carbon black and conductive components to make the rubber conductive and dissipative. Therefore, the range of rubber resistivity

It is relatively wide, but it is difficult to accurately measure the higher resistivity due to the influence of some factors.

In international standards, a protective electrode system is commonly used to measure the resistivity of rubber test pieces. It is generally believed that this method can effectively avoid

dispersion.

Current, thereby reducing the error of the test, and the measurement range is also wider (see IEC 62631-3-1).

The measurement range of the international standard ISO 1853 includes low to medium conductivity rubber materials, that is, the resistivity is 108ohm.m or lower

Resistivity of rubber. The standard describes in detail three methods for measuring the volume resistivity of rubber, which can reduce or eliminate contact resistance.

This document is usually used to measure the volume resistivity and surface resistivity of insulating rubber, and the measurement range can cover low resistivity to high electrical resistivity.

Resistivity of rubber.

The result of the test is very sensitive to the test environment, such as the influence of temperature, humidity, heat source and stress.

Vulcanized rubber or thermoplastic rubber

Determination of volume and/or surface resistivity

Warning 1---The personnel using this document should have practical experience in formal laboratory work. This document does not indicate all possible safety

Questions, users are responsible for taking appropriate safety and health measures, and to ensure that they meet the requirements of relevant national laws and regulations.

Warning 2-Certain steps specified in this document may involve the use or generation of certain wastes, which may cause harm to the local environment.

The relevant documents shall stipulate appropriate safe operation and waste disposal clauses after use.

1 Scope

This document describes the test methods for volume resistivity and/or surface resistivity of vulcanized rubber or thermoplastic rubber.

This document is applicable to vulcanized rubber or thermoplastic rubber with resistivity between 101ohm.m and 1017ohm.m.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations

Only the version corresponding to that date is applicable to this document; for undated

reference documents, the latest version (including all amendments) is applicable to
This document.

ISO 1382 Rubber-Vocabulary

ISO 18899.2013 Rubber-Guide to the calibration of test equipment

ISO 23529 Rubber-General procedures for pre-
paring and conditioning test pieces for physical test methods)

3 Terms and definitions

The following terms and definitions defined by ISO 1382 apply to this document.

ISO and IEC have established terminology databases for standardization purposes. The website is as follows.

3.1

Volume resistance

RV

The DC voltage applied between the two electrodes that are in contact with the opposite surface of the sample and the current between the two electrodes (excluding the electric current along the surface)

Flow) ratio.

Note. The unit is ohm (ohm).

3.2

Surface resistance surfacereistence

RS

The ratio of the DC voltage to the current between two electrodes applied on the same surface of the sample.

Note. The unit is ohm (ohm).