

ICS 83.060

CCS G40



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

GB/T 1692-2008

Replacing GB/T 1692-1992

Vulcanized rubber-Determination of the insulation resistivity

硫化橡胶 绝缘电阻率的测定

Issued on: April 1, 2008

Implemented on: September 1, 2008

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China;
Standardization Administration of China**

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative references...	4
3 Terms and definitions...	4
4 Test principle...	5
5 Test equipment...	5
6 Specimen and conditioning...	8
7 Test conditions...	9
8 Test steps...	9
9 Test result expression...	9
10 Appendix A (Informative) Recommended electrode...	12

Foreword

This standard replaces GB/T 1692-1992 "Vulcanized rubber - Determination of the insulation resistivity". The main technical differences between this standard and GB/T 1692-1992 are as follows: - ADD the warning words; - ADD the normative references (see Chapter 2); - ADD the definitions of volume resistance, volume resistivity, surface resistance, surface resistivity (see Chapter 3); - MODIFY the allowable deviation of the thickness of soft rubber specimen (

5.1 of the 1992 edition;

6.1 of this edition); - MODIFY the specimen treatment (

5.2.2 of the 1992 edition;

6.2.4 of this edition); - MODIFY the relative humidity of the test conditions to $50\% \pm 5\%$, to meet the standard laboratory requirements (

6.2 of the 1992 edition;

7.2 of this edition). Appendix A of this standard is an informative appendix. This standard was proposed by the China Petroleum and Chemical Industry Association. This standard shall be under the jurisdiction of the Rubber Physical and Chemical Test Methods Subcommittee of the National Technical Committee for Standardization of Rubber and Rubber Products (SAC/TC 35/SC 2). The drafting organization of this standard. Northwest Rubber and Plastic Research and Design Institute. The main drafters of this standard. Zhu

Wei, Gao Yun. The previous versions of this standard. - GB/T 1692-1979; GB/T 1692-1992. Rubber, vulcanized - Determination of electrical breakdown strength and voltage resistant at commercial power frequency Warning. People who use this standard shall have practical experience in formal laboratories. This standard does not point out all possible safety issues. Users are responsible for taking appropriate safety and health measures and ensuring compliance with relevant national laws and regulations.

1 Scope

GB/T 1692-2008 is the Chinese national standard on vulcanized rubber-determination of the insulation resistivity, in the field of rubber and plastic industries. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 1 April 2008 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 September 2008. Classification: ICS 83.060, CCS G40. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the method for determining the insulation resistivity of vulcanized rubber. This standard is applicable to the determination of the insulation resistivity of vulcanized rubber, which has a resistance greater than 108 Omega.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard; however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 2941 Rubber - General procedures for preparing and conditioning test pieces for physical test methods (GB/T 2941-2006, ISO 23529.2004, IDT)

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1 Insulation resistance The ratio -- of the DC voltage on the specimen to the total current flowing through the specimen -- is called insulation resistance. It includes two parts. volume resistance and surface resistance.

3.2 Volume resistance The ratio -- of the DC voltage on the specimen to the current flowing through the specimen volume, which is expressed by R_v .

3.3 Volume resistivity The resistance value of the dielectric in the unit volume (cubic centimeters) of the specimen, which is expressed by ρ_v .

3.4 Surface resistance The ratio -- of the DC voltage on the specimen surface to the current flowing through the specimen surface, expressed as R_s .

3.5 Surface resistivity If a square of any size is taken on the specimen surface, meanwhile the current passes through the opposite sides of the square, the resistance value of the square is the surface resistivity, expressed as ρ_s .

4 Test principle

Apply a DC voltage to the specimen; measure the leakage current perpendicular to the specimen or along the specimen surface; calculate the volume resistivity or surface resistivity of the specimen.

5 Test equipment

The test equipment includes auxiliary electrodes and high resistance meters.

5.1 The auxiliary electrode materials are shown in Table 1. the specimen).

6.2.4 Place the wiped specimen in a container with a desiccant at a temperature of $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 24 h.

6.2.5 If there are special requirements in the product standard, the handling of the specimen can be carried out in accordance with the product standard.

7 Test conditions

7.1 The test voltage is 1000 V or 500 V; the voltage fluctuation deviation is not more than 5%.

7.2 The laboratory temperature is $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$; the relative humidity is $50\% \pm 5\%$.

7.3 Where there are special requirements for specimen processing, the test can be carried out according to the requirements.

8 Test steps

8.1 Connect the test instrument; connect the tested specimen to the instrument test end according to the test requirements, as shown in Figure 4.

8.2 Operate correctly according to the equipment instruction manual and operating procedures. When the resistance of the test meter is $10^{14}\text{ }\Omega$ or below, read the

indication at 1 min. When the resistance is above 1014 Ω , read the indication at 2 min. Record the indication.

8.3 After each specimen is tested, turn the "discharge-test" switch to the "discharge" position; turn the input short circuit switch to the "short circuit" position; take out the specimen. If the test continues, replace the specimen according to the steps of

8.4 When all the tests are completed, cut off the power supply. Restore the instrument to the initial state.