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

GB/T 31838.1-2015

**Solid insulating materials -- Dielectric and resistive properties --
Part 1: General**

固体绝缘材料 介电和电阻特性 第1部分：总则

(English Translation)

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Foreword

GB/T 31838 "solid insulating materials, dielectric and resistive properties" consists of the following components.

--- Part 1. General;

--- Part 2. dielectric constant and dielectric loss factor (AC method) technology frequency (1Hz to 100MHz);

--- Part 3. dielectric constant and dielectric loss factor (AC method) high frequency (1MHz to 300MHz);

--- Part 4. dielectric constant and dielectric loss factor (AC method) ultra-high frequency (300MHz or more);

--- Part 5. dielectric constant and dielectric loss factor (AC method) low frequency (1MHz to 1kHz);

--- Part 6. resistance characteristic (DC method) and the volume resistivity and volume;

--- Part 7. resistance characteristic (DC method) surface resistance and surface resistivity;

--- Part 8. resistance characteristic (DC method) Insulation resistance;

This section GB/T Part of 131,838.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the translation method is equivalent to using IEC 62631-1:2011 "solid insulating materials, dielectric and resistance characteristics - Part 1. General then".

Correspondence with consistency in this section of our normative references the following documents.

--- GB/T 2900.5-2013 Electrotechnical terminology insulating solids, liquids and gases (IEC 60050-212:2010, IDT);

--- GB/T 2918-1998 plastic sample conditioning and testing of the standard environment (ISO 291:1997, IDT);

--- GB/T 29306.1-2012 insulating materials at frequencies above 300MHz dielectric properties measurement method - Part 1. General Then (IEC 60377-1. 1973, MOD);

--- GB/T 29306.2-2012 insulating materials at frequencies above 300MHz dielectric properties measurement method - Part 2. Harmonic Vibration method (IEC 60377-2. 1977, MOD).

And IEC 62631-1:2011 section compared to editorial changes made the following.

--- Deleted the relevant IEC 62631 standard for the representation part series of standards;

--- Remove the Preface Table 1 on planning other parts of the IEC 62631 description.

This part is proposed by the China Electrical Equipment Industrial Association.

This part of the National Electrical insulation materials and insulation systems assessment Standardization Technical Committee (SAC/TC301) centralized.

This section is drafted. Electrical Machinery Industry Beijing Technology and Economy Institute, Nantong Ling Insulation Materials Co., Ltd., Shunde District of Foshan City Quality and Technology Supervision of standards and codes, Cooper Electronic Technology (Shanghai) Co., Ltd.

Introduction

Dielectric measurements of solid insulating materials and resistance characteristics depend on the nature and value of the voltage applied to the geometry of the time, frequency, electrode, Conditions of the sample processing, measurement of ambient temperature and atmospheric humidity, the electric field strength. Therefore, the electrical and dielectric properties included in this standard Only under specified measuring environmental parameters comparable circumstances. In this series of standards or product standards and test procedures for the relevant section Points, the shape, size and measurement parameters of the test sample should be clear. It depends on the need to meet the specific measurement requirements. As for the design Power products and the use of the measured value of the standard, should be cautious.

Solid insulating materials, dielectric and resistance characteristics Part 1. General

1 Scope

GB/T 31838 provisions of this part of the General determination of solid electrical insulating materials, dielectric and resistance characteristics.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 1409-2006 Measurement of electrical insulating materials at power, audio, high-frequency (including Nami Bo wavelength included) and dielectric permittivity Loss Factor recommended method (IEC 60250. 1969, IDT) GB/T 1410-2006 solid insulating material volume resistivity and surface resistivity test methods (IEC 60093. 1980, IDT) GB/T 10064-2006 Determination of solid insulating material of the insulation resistance tests (IEC 60167. 1964, IDT) GB/T 10581-2006 Test method for insulating materials in high temperature resistance and resistivity (IEC 60345. 1971, IDT) IEC 60377-1. 1973 Insulation material at frequencies above 300MHz dielectric properties measurement method - Part 1. General

(Recommended methods for the determination of the dielectric properties of insulating materials at frequencies above 300MHz-Part 1. General) IEC 60377-2. 1977 Determination of the dielectric properties of insulating materials - Part 2 at frequencies above 300MHz.

Resonance

(Recommended methods for the determination of the dielectric properties of insulating materials at frequencies above 300MHz-Part 2. Resonance methods) IEC 60050-212 International Electrotechnical Vocabulary Terminology - Part 212. Electrical insulating solids, liquids and gases (International electrotechnical vocabulary-Part 212. Electrical insulating solids, liquids and gases) ISO 291 environmental standard plastic sample conditioning and testing (Plastics-Standard atmospheres for conditioning and testing) ISO 558 test standard atmospheric conditions and definitions

(Conditioning and testing-Standard atmospheres-Definitions)

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 General definitions

3.1.1

Electrical insulating materials electrical insulating material Having negligible low conductivity of the solid material used to isolate the potential of different conductor portions.

NOTE: In the English vocabulary, the term "electrically insulating material" is also widely used in liquids and gases. IEC 60247 contains a liquid insulating material content.

3.2 Resistance characteristic defined

Resistance characteristic of an insulating material within a certain time frame measured DC voltage integrated material properties.