

ICS 29.035.20
CCS K 15



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

GB/Z 28818-2012

**Selection guide for polymeric materials for outdoor use under
HV stress**

Issued on: November 5, 2012

Implemented on: February 1, 2013

Issued by: Ministry of Health of the People's Republic of China

Table of Contents

Foreword

Introduction

1 Scope

2 Normative references

Foreword

This instructional document has been drafted in accordance with the rules given in GB/T 1.1-2009.

The guidance of technical documents using the translation method is equivalent to using IEC /T R62039.2007 "high voltage outdoor polymer materials selection Guidelines".

Our document, which corresponds in a consistent manner to the international documents that are normative references in this Guidance Document, is as follows.

--- GB/T 1409-2006 Measurement of electrical insulation materials in the power frequency, audio, high frequency (including the wavelength of rice) Capacitance and dielectric

Recommended method of mass loss factor (IEC 60250-1969, MOD)

Resin based reactive composites for electrical insulation - Part 2. Test methods (IEC 60455-2).

1998, MOD)

Plastics - Laboratory exposure test methods - Part 3. Fluorescent UV lamps (eqv, ISO 4892-3).

1994)

--- GB/T 19519-2004 Nominal voltage is higher than 1000V AC overhead lines with composite insulators, test methods

And acceptance criteria (IEC 61109.1992, MOD)

--- GB/T 22079-2008 Nominal voltage is higher than 1000V The general definition of indoor and outdoor polymer insulators, test

Test methods and acceptance criteria (IEC 62217.2005, MOD)

This guidance document is proposed by China Electrical Equipment Industry Association.

This Guidance Document is under the control of the National Technical Committee for Standardization of Electrical Insulation Materials and Insulation Systems Assessment (SAC/TC301).

The guiding technical documents drafting unit. Machinery Industry Beijing Institute of Electrical Technology and Economy, Shenzhen Testing Technology Co., Ltd.

Division, Guilin Electric Apparatus Research Institute, China Electrical Equipment Industry Association Standardization Committee, Beijing North Heavy Turbine Electric Co., Ltd., North

Beijing Xin Rui Runda insulation materials limited liability company.

Introduction

Defining the Physical Properties of Outdoor Polymer Insulation Materials Needs Common Material and Industrial Materials Standards. This demand is there

IEC /TC36 and IEC /TC15 meeting discussed and identified, including IEC /TC15 SC15E integrated into IEC /TC112. because

This, in 2001 CIGRE (International Large Power Grid) D1.14 working group set up to undertake the definition of outdoor polymer insulation materials necessary physics

Parameters and tasks related to the development of test methods. As a first step, CIGRE publishes a technical specification report in the 255 handbook. Determine 12 kinds of sex

Can, unified one of eight kinds of performance standardization test methods and minimum requirements. For the remaining four kinds of performance, test methods and minimum requirements still need to know

Indeed, this will be the next task of the D1 Working Group. The IEC Technical Report as a CIGRE Conclusion introduces outdoor polymer insulation

Important material properties, their applications, standardized test methods and minimum requirements. If there is no applicable standard test method then

Refer to the test methods summarized in this Guidance Document.

Guidelines for the Selection of Outdoor Polymer Materials at High Voltages

1 Scope

This guideline documents the important material properties of outdoor polymeric insulation and, where applicable,

Standard test method with minimum requirements. If there is no applicable standard test method, refer to the test summarized in this technical document

method.

This guideline is applicable to outdoor high-voltage polymer insulation materials for system voltages above 1000VAC and includes

Enclosures are an integral part of the device, for example in surge arresters and cable terminations. The scope of this guidance document is limited to these materials

material. Insulator performance depends on several factors, such as the type of material, design, environmental conditions. Therefore, when choosing a material, satisfy the following

Column requirements are necessary, but this does not guarantee that the material will meet performance standards when used outdoors for insulation.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 1034-2008 Determination of plastic water absorption (ISO 62.2008, IDT)

GB/T 1408.1-2006 Insulating material electrical strength test methods Part 1. Test at power frequency (IEC 60243-1.1998,

IDT)

GB/T 1410-2006 Test methods for volume resistivity and surface resistivity of solid insulating materials (IEC 60093.1980, IDT)

GB/T 1411-2002 Dry solid insulating materials with high voltage, low current arc discharge test (IEC 61621.1997, IDT)

GB/T 5169.16-2008 Fire hazard testing for electric and electronic products Part 16. Test flame 50W Horizontal and vertical fire

Flame test method (IEC 60695-11-10.2003, IDT)

GB/T 6553-2003 Assessment of resistance to tracking and erosion of electrical insulating materials used under harsh environmental conditions - Test Method

(IEC 60587.1984, IDT)

Plastics - Laboratory exposure test methods - Part 2. Xenon arc lamps (ISO 4892-2.1994,

IDT)

Plastics - Differential Scanning Calorimetry (DSC) - Part 2. Determination of Glass Transition Temperature GB/T 19466.2-2004

(ISO 11357-2:1999, IDT)

GB/T 22567-2008 electrical insulating materials - Determination of glass transition temperature test method (IEC 61006:2004, IDT)

Rubber, vulcanized or thermoplastic - Determination of tear strength - Part 1. Trouser, square and crescent test pieces

(Rubber-vulcanized or thermoplastic-Determination of tear strength-Part 1. Trouser, angle and crescent test pieces)

ISO 4892-3 Plastics Laboratory exposure test methods - Part 3. Fluorescent UV lamps (Plastics-Methods of

exposure to laboratory light sources-Part 3. Fluorescent UV lamps)

ISO 4892-4:2004 Plastics - Laboratory exposure test methods - Part 4. Open-carbon arc lamps (Plastics-Methods

of exposure to laboratory light sources-Part 4. Open flame carbon-arc lamps)

Plastics - Thermodynamic analysis (TMA) - Part 2. Linear thermal expansion coefficient and glass transition temperature (ISO 11359-2:1999)

Determination (Plastics-Thermodynamic analysis (TMA) -Part 2. Determination of coefficient of linear

thermal expansion and glass transition temperature)