

ICS 29.080.10  
CCS K 48



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

**GB/T 22707-2008**

---

**Artificial pollution tests on high-voltage insulators to be used  
on d.c. systems**

直流系统用高压绝缘子的人工污秽试验

**(English Translation)**

**Issued on: December 30, 2008**

**Implemented on: October 1, 2009**

---

**Issued by: Standardization Administration of China**

## Table of Contents

Introduction

1 Scope

2 Normative references

3 Terms and definitions

3.4 General test requirements

4.1 Test arrangement

4.2 Subjects insulator mounting arrangement

4.3 Requirements test circuit

Salt spray method 4

5.1.4 salt solution

5.2 Spray System

5.3 Test conditions before the start of the

5.4 Preprocessor

5.5 Tolerance test

5.6 Tolerance test acceptance criteria

6.7 solid layer method

6.1 Contaminated fluid composition

6.2 Key features of inert materials

6.3 Pollution layer coating

6.4 Subjects Insulators Contamination measuring

6.5 Test Procedure

6.6 Tolerance test and acceptance criteria

7 Insulators 9 Withstand

7.1 Determination of the insulator 9 Withstand

7.2 Determination of a given test voltage to the maximum contamination tolerance of

7.3 Given the degree of contamination measured at the maximum tolerated voltage

7.4 Measured at a given degree of contamination withstand voltage of 10 to 50%

Uniformity of approach in Appendix A (informative) Check dirt layer

Annex B (informative) Additional recommendation on the solid layer method procedures

B.1 dried dirt layer

B. Check that the wet fog effect 2

B. Input 3 laboratory fog

B. 4 tolerance test duration of

B. 5 reference to the accompanying salt density (SD) Evaluation

Annex C (informative) Artificial pollution tests on test equipment information

Appendix D (Informative Appendix) IEC/T R61245.1993 Introduction

Annex E (informative) The standard clauses and IEC/T R61245.1993 reg technical differences and their causes

Annex F (informative) The standard clauses and IEC/T R61245.1993 21 reg control list

1 On 100mA resistive load measured ripple voltage amplitude map and the actual average

## Foreword

This revised standard adopts IEC/T R61245.1993 "DC system with artificial pollution tests on high-voltage insulators" (in English).

This standard is based on IEC/T R61245.1993 redrafted drafting removed IEC/T R61245.1993 in the section number. in Appendix F lists the number of the standard clauses and IEC/T R61245.1993, List of numbers control strip.

Taking into account China's national conditions, in using IEC/T R61245.1993, the present standard do some modifications, have been incorporated into the relevant technical difference positive in this paper, and they are involved in the technical provisions margin with a single vertical line identifies the space. Given these technical difference in Appendix E its list of different reasons for reference.

For ease of use, this standard also made the following editorial changes.

The term a) "The technical report" to the "standard";

b) use a decimal point instead of a decimal comma " , " . " , " ;

c) Remove IEC/T R61245.1993 Foreword;

d) In order to understand when ease of use, the IEC/T R61245.1993 introduction as an appendix of data included in Appendix D.

The Standard Appendix A, Appendix B, Appendix C, Appendix D, Appendix E and F are informative appendices.

The standard proposed by China Electrical Equipment Industrial Association.

This standard by the National Standardization Technical Committee Insulators (SAC/TC80) centralized.

This standard was drafted. China Electric Power Research Institute, Xi'an Ceramic Institute, State Grid Corporation of Wuhan High Voltage Research Institute.

## 1 Scope

Artificial pollution test procedures specified in this standard applies to DC overhead line insulators, substation insulators and traction lines with insulation. It can also be used with a suitable protective equipment to avoid internal damage and other equipment used for hollow insulators. These procedures apply when equipped with a hollow insulator in equipment, the relevant technical committees should consider the impact on the internal device and may require special anti-employed Protection devices.

This standard applies to a voltage of  $\pm 1000\text{V}$  to  $\pm 800\text{kV}$  DC system used outdoors and exposed to dirty environments. It specifies the tolerability characteristics of the glass edge of the sub-determination.

These tests can not be directly applied to the organic material of the insulators, composite insulators coated with grease or special types of insulators (semiconductor or insulator is covered with a glaze of any organic material insulator).

**Note:** For large sample, such as a large wall bushing and transformer, experience has shown that the test results have a greater dispersion.

## 2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research. Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 16927.1-1997 high voltage test techniques Part 1. General test requirements (eqv IEC 60060-1. 1989)

## 3 Terms and Definitions

The following terms and definitions apply to this standard.

Refers to the provisions specified test voltage is applied to the contamination of the sample to a predetermined duration of time, or to a single process composed of flashover occurs.

U<sub>Rao</sub>

Moment and is being considered as the average of the instant within a time interval between the end of the voltage, the time interval is equal to the whole supply A current cycle of the AC voltage.

**NOTE:** When you are not sure of the supply voltage cycle, this time interval is 20ms.

The actual average voltage during a single experiment began.

The actual average amplitude of the ripple voltage ratio ( $U_r/U_a$  shown in Figure 1).

The difference between the actual test voltage and the average voltage (Figure 2).