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

GB/T 22709-2008

**Residual strength of string insulator units of glass or ceramic
material for overhead lines after mechanical damage of the
dielectric**

架空线路玻璃或瓷绝缘子串元件绝缘体机械破损后的残余强度

(English Translation)

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Pre-test residual strength and high alumina cement with plastic insulator Annex A
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A. Residual strength of a long rod porcelain insulator

A. 2 aluminous cement with plastic insulator pre-test (temperature cycle test)

Annex B (informative) This standard reg number and IEC/T R60797. 1984 reg control
number

Annex C (informative) This standard and IEC/T R60797. 1984 Technical Differences and
Cause

Foreword

This revised standard adopts IEC/T R60797. 1984 "overhead lines of glass or porcelain insulator string insulator residue after mechanical damage Strength "(in English).

This standard is based on IEC/T R60797. redrafted 1984. For ease of comparison, it is listed in Appendix B of this standard reg number and IEC/T R60797. 1984 reg control list numbered.

Taking into account China's national conditions, the use of this standard in IEC/T R60797. 1984 when some modifications. About the technical differences have been incorporated into the body, and they relate to technical provisions margin with a single vertical line identifies the space. These technical differences are given in Appendix C its list of reasons for reference.

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

--- The term "Report" to "this standard";

--- Remove IEC 60797. 1984 Foreword;

--- The IEC 60797. 1984 amended within 4.1 standard incorporated in this "scope";

--- Added "2 Normative references" and the titles and blurbs in Chapter 3.

This standard Annex A, Annex B and Annex C is informative appendix.

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. National Insulator arrester Quality Supervision and Inspection Center, Xi'an Ceramic Institute, East China Grid Company Limited, Shaanxi Provincial Power Company.

Introduction

Running all kinds of insulators such as may be due to AC arc, vandalism and various other causes of damage. B-type insulators (see GB/T 1001.1-2003 "nominal voltage above 1000V Insulators for overhead lines - Part 1. System AC porcelain or glass insulation Chapter 4 sub-element definitions, test methods and acceptance criteria"), and as part of the insulating disc suspension insulator, it may also be due to electrical breakdown Cause damage. IEC Publication 383 does not include test residual strength tests. As long as the insulator is not completely destroyed, its residual mechanical strength Degree is certainly important.

This standard only considers the pin type glass and porcelain insulators and long rod porcelain insulators.

These three types of insulators in actual damage and the remaining properties are different. Therefore, when discussing the residual strength and residual strength test, it is necessary to be considered separately for each type of insulator, even though it used the same three types of insulator string insulator units for overhead lines.

The disc-shaped suspension porcelain insulators, the extent of damage varies, depending on the size and the type of mechanical impact force, broken porcelain insulators Loss will lead to lower mechanical strength of the insulator.

For pin type glass insulators, any damage will lead to include all the vitreous inner cap portion all at once broken into small Falling blocks, the mechanical strength of the insulator can be imagined.

The extent of long rod porcelain insulators damage varies widely, may be shed micro-crack, it could be the overall damage. Damage to the rod Reduce its mechanical strength. For long

rod porcelain insulators still can not predetermined residual strength test, because neither the provisions of a representative sample Product preparation, can not find the relationship between the degree of damage and reduction in mechanical strength between the (long rod porcelain insulators on the residual strength in more detail See the Appendix A. 1).

It has been found residual strength Disc Suspension porcelain insulators and glass insulators depending on the design, and manufacture, selection of materials to and the extent of damage has little (which are applicable only in porcelain insulators).

Overhead lines of glass or porcelain insulator string element the residual strength of the insulator after mechanical damage

1 Scope

This standard specifies the GB/T 1001.1-2003 Chapter 18 of the type of pilot projects in the residual strength tests.

This standard applies to the use of tempered glass or pin type string insulator porcelain insulator material.

Note 1: Although the manufacturing conditions and material selection may have some impact on the residual strength, but mainly determined by the design of the insulator, GB/T 1001.1-2003 Predetermined sampling tests and test-by-test sufficient manufacturing quality and quality of materials used.

Note 2: The reasons given in Appendix A test procedure given in this standard does not apply to long rod porcelain insulators, this standard does not consider the pin type annealing glass Glass string insulator.

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 1001.1-2003 nominal voltage above 1000V Insulators for overhead lines - Part 1. Ceramic or glass AC system Glass insulator element definitions, test methods and acceptance criteria (IEC 60383-1:1993, MOD) GB/T 4056-2008 insulator ball and socket connection string element size (IEC 60120. 1984, IDT) GB/T 2900.8 Electrotechnical terminology insulator (GB/T 2900.8-1995, eqv IEC 60050-471. 1984)

3 Terms and Definitions

GB/T 2900.8 and established the following terms and definitions apply to this standard.

Insulator element residual strength under specified conditions has been tested for insulation in the manner prescribed suffered mechanical injury can reach the maximum mechanical load.

4.1 Number of test product

The number of samples tested for the residual strength of 25.

4.2 Pre-test

The sample shall be drawn in by the by-products after passing the test.

Before residual strength test shall GB/T 1001.1-2003 Chapter 24 method specified temperature cycle test. When using a high Aluminum with plastic cement insulator element, hot bath water temperature should be kept below 75 °C (see A.2).

NOTE: Before performing residual strength test, the test has been considered is subjected to alternating mechanical load or thermal performance test. Because laboratory studies have demonstrated that these trials no significant effect, so do not consider that they are associated with residual strength tests.

4.3 Preparation of the test sample

Insulator after the temperature cycle, mechanical methods should be used (for example, a hammer percussion) destroyed their sheds, sheds should not exceed the remaining part of the iron the maximum diameter of the cap, the percussion process should be careful not to damage the insulator test items inside the cap.