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

GB/T 25096-2010

**Composite station post insulators for substations with AC
voltages greater than 1000V -- Definitions, test methods and
acceptance criteria**

交流电压高于1000V变电站用电站支柱复合绝缘子 定义、试验方法及接收准则
(English Translation)

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Foreword

This standard is modified using IEC 62231.:2006 "AC voltage higher than 1000V ~ 245kV substation power station pillar composite insulation Definition, test method and acceptance criteria "(English version).

This standard is redrafted according to IEC 62231.:2006.

In addition to 8.6 and appendix F, the standard section number of this standard is identical to the chapter number of IEC 62231.:2006.

When using IEC 62231.:2006, this standard has been modified. These technical differences are identified by vertical single lines (-) in them the margin of the terms involved.

This standard refers to the adoption of international standards of national standards.

Appendix F gives a list of technical differences and their causes for this standard and IEC 62231.:2006.

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

- a) the word "international standard" is changed to "this standard";
- b) Replace the comma as a decimal point with a decimal point "."
- c) prerequisites for the removal of international standards.

Appendix A, Appendix B, Appendix C, Appendix E and Appendix F of this standard are informative and Appendix D is a normative appendix.

This standard is proposed by China Electrical Equipment Industry Association.

This standard is nationalized by the National Insulator Standardization Technical Committee (SAC/TC80).

The drafting of this standard unit. Xi'an High Voltage Electric Research Institute Co., Ltd.
Xi'an Electric Porcelain Research Institute, Nantong City Shenma Electric Power Technology Co., Ltd.

Division, the state insulator arrester quality supervision and inspection center, the State

Grid Wuhan High Voltage Research Institute, China Electric Power Research Institute.

Introduction

Power column pillar composite insulator from the mechanical load to withstand the solid cylinder insulation core and covered with the core on the core of the protective effect the elastic body is made of resin, the core is made of resin impregnated fiber, and the mechanical load is transmitted to the core through metal attachment. Despite these common features Point, but the materials used in different manufacturers and the structure used may still be different.

Some trials are concentrated together as a "design test", which is only required once for the same design insulator, with the aim of removing not suitable for high voltage applications and materials. Time on the power column pillar composite insulators and their components (core material, umbrella material, interface Etc.) The mechanical and electrical properties have been considered in the specified design tests to ensure that they have satisfactory service life under normal operating conditions.

The mechanical test method under the bending load used in this standard is based on GB/T .20142-2006. This method uses the concept of damage limit.

The damage limit is the maximum stress that the insulator can achieve before it begins to be damaged. It is confirmed that the work of measuring the initial damage by acoustic emission technique is in progress in the line.

In some cases, the pillars of the power plant insulator to bear the combined load. As a guide, Appendix B explains how to calculate the bend, pull the equivalent bending moment produced by the combination of the extended and compressive loads on the insulator.

This standard does not include GB/T 4585-2004 and GB/T 22707-2008 "DC system with high voltage insulator artificial contamination test" Prescribed contamination tests, since the applicability of these standards to composite insulators has not yet been confirmed. Such a contamination test and operational experience Association has not yet been established. The composite insulator contamination test method is under consideration.

This standard does not consider the use of the frequency arc test as a necessary test. As the structure of the transmission network and the tower is different and arc protection device design is different, a variety of test parameters, the results are also very different. The heating of the arc should be taken into account in the design of the metal accessory effect. The use of an appropriately designed arc protection device avoids serious damage to the metal fittings caused by short circuit currents. However, this standard Quasi-does not exclude the possibility of conducting an arc test by both parties. GB/T 25084-2010 "frame with nominal voltage higher than 1000V Air line with insulator string and insulator string AC frequency arc test "gives the insulator string arc test details.

The impact (mechanical) load caused by the short circuit current in the substation belongs to the typical load, and the pillar insulator is supported by the conductor or bus the effect of the interaction of the electric power generated by the interaction.

The impact load or load peak can be evaluated using the guidelines in the IEC 60865 series of standards.

International Conference on Large Power Grid (CIGRE) "Short-circuit current impact" work is ongoing, its task is to evaluate the short-circuit current in the substation from the impact load. The purpose of this work is to introduce a new concept. the constant static load (ESL) factor to be used frequently. First of all the peak load can be multiplied by the ESL factor by the peak load. This value can be used as MDCL in this standard bending strength determination.

This standard does not specify radio interference and corona test, because these two properties are not simply the characteristics of the insulator.

This standard does not currently involve the use of hollow tube as the bearing of the power station pillar composite insulators. GB/T 21429-2008 gives empty Core composite insulator test details, many of which can be used for hollow power plant pillar composite insulators.

AC voltage is higher than 1000V substation power column Classification of composite insulators, test methods and acceptance criteria

1 Scope and purpose

This standard applies to the power column pillar composite insulator, which consists of solid cylindrical insulation core, umbrella (located outside the solid insulation core) and End assembly. The core of the load is made of resin impregnated fiber, the umbrella is made of elastic material (such as silicone rubber or ethylene propylene rubber) the end fitting is fixed to the insulator core. The pillars composite insulators described in this standard are subjected to bending, twisting, stretching and compression Charge for substation with AC voltage higher than 1000V.

Note: DC system with power column pillar composite insulators can refer to the implementation.

The purpose of this standard is.

Define the terminology used;

- specify the test method;
- Provisions for acceptance or nonconformity.

This standard does not contain the requirements for the selection of insulators under special operating conditions.