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

GB/T 20112-2015

Replacing GB/T 20112-2006

Evaluation and qualification of electrical insulation systems

电气绝缘系统的评定与鉴别

(English Translation)

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References

Foreword

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

This standard replaces GB/T 20112-2006 "assessment and identification of electrically insulating structure," compared with the GB/T 20112-2006, except series Series modifications, mainly technical changes are as follows.

- The "electrical insulation" to "Electrical insulation systems";
- Remove the "impact factor" term (see the 2006 version 3.2.2);
- Added "potentially damaging stress", "conditional processing" and "life" of the term (see 3.2.2,3.3.5,3.3.10);
- Modify the "end standard" definition of the term (see 3.3.9, 3.3.8 in the 2006 edition);
- Modify most of the standard (see Figure 2, 3, 4, 5, 7 and 9, the 2006 edition of the Figs. 2, 3, 4, Figs. 5, 7 and 9);
- Added "Table 2" (see Table 2);
- Changed to "Appendix A" (see Appendix A, 2006 edition of Appendix A);
- Removed "Appendix B" (see the 2006 edition of Appendix B);
- Added "Appendix NA", listed in the 2006 edition of this standard and the correspondence between sections (see Appendix NA).

This standard uses the translation method identical with IEC 60505:2011 "Identification and assessment of electrical insulation systems." Consistency correspondence with international standards in this standard references of our standards are as follows.

--- GB/T 11026.2-2012 heat resistance, electrical insulating materials - Part 2. Test selection criteria (IEC 60216-2.

2005, IDT);

--- GB/T 11026.3-2006 heat resistance, electrical insulating materials - Part 3. Calculation procedure thermal characteristic parameters (IEC 60216-3:2002, IDT);

--- GB/T 11026.7-2014 heat resistance, electrical insulating materials - Part 7. determine the relative thermal index of insulation material (IEC 60216-5:2008, IDT);

The test results based on a normal distribution. --- GB/T 21223.1-2015 aging test statistical

analysis Guide Part 1 the method based on the average value (IEC 60493-1:2011, IDT);

--- GB/T 26168.1-2010 Electrical insulating materials determine the effects of ionizing radiation - Part 1. Radiation interaction and agent Determination (IEC 60544-1:1994, IDT);

--- GB/T 29310-2012 electrical insulation breakdown statistical analysis Guide (IEC 62539:2007, IDT);

--- GB/T 29311-2012 AC voltage electrical insulation material durability assessment General (IEC/T S61251.2008, IDT).

And IEC 60505:2011 as compared to the standard made the following editorial changes.

--- Unified compiled in Appendix A references cited therein;

--- Increase the informative appendix NA, lists the relationship between the control of the standard reg number and GB/T 20112-2006 reg number.

The standard proposed by China Electrical Equipment Industrial Association.

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

This standard by the Shanghai Electrical Apparatus Research Institute, DuPont China Holding Co., Ltd., Beijing Electrical Machinery Industry Technical and Economic Research Institute, Beijing Beizhong Steam Turbine Co., Ltd., Shandong Qilu Motor Manufacturing Co., Ltd., Shanghai Electric equipment testing is responsible for drafting.

Introduction

Operating life of electrical equipment is typically determined by the electrical insulation systems (EIS) life. EIS by the life of electrical, thermal, mechanical, environmental should Single action or force the combined effects of the impact.

Expectations, estimates or proven operating life is used to describe the basic parameters EIS life. In the early electrical engineering, life expectancy figure is Very vague. Insulation under thermal stress lifetime limit is one of the main indicators of the operation of certain equipment aging effects. With the use of EIS Increased experience, has recognized the need to choose a particular material has a satisfactory life at a given temperature to achieve the required operating life and easy Heat computing capabilities of the device.

Users of this standard may assess the relationship between the existing test methods and provide their equipment. Therefore, the responsibility of the user of this standard Proof of the effectiveness of existing test methods in accordance with the principles of this standard.

Development and design EIS determining the life expectancy is a basic task. EIS should identify the reasons for the estimated operating life is.

Type test --- the introduction of new products at the EIS;

- Production quality assurance;
- Estimated life expectancy of new equipment;
- Maintenance estimated remaining life time.

Aging mechanisms affect EIS performance. Through the analysis and assessment of the diagnostic potential of these mechanisms linked to design an accurate assessment test Inspection program.

The following key structure meets the above requirements and easily select the desired part.

Identification and assessment of electrical insulation systems

1 Scope

This standard establishes under assessment for electrical insulation system (EIS) in the electrical, thermal, mechanical, environmental stress conditions or stress condition factor the basic principle of aging.

This standard specifies the principles and procedures during the development of EIS functional test and evaluation procedures to be followed to determine the specific EIS expected Operating life.

This standard applies to all equipment containing Standardization Technical Committee responsible for the EIS.

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.

Heat Part 2 IEC 60216-2 Electrical insulating materials. Test selection criteria (Electricalinsulatingma-terials-Thermalenduranceproperties-Part 2. Determinationofthermalendurancepropertiesofelec-tricalinsulatingmaterials-Choiceoftestcrit eria) IEC 60216-3 Electrical insulating materials - Thermal resistance - Part 3. Calculation procedure thermal characteristic parameters (Electricalinsulating materials-Thermalenduranceproperties-Part 3. Instructionsforcalculatingthermalendurance characteristics) IEC 60216-5 Electrical insulating materials - Thermal resistance - Part 5. determine the relative thermal index of insulation material (RTE) [Electricalinsulating materials-Thermalenduranceproperties-Part 5. Determinationofrelative thermalenduranceindex (RTE) ofaninsulatingmaterial] the average basis of establishing normal distribution in the test results. IEC 60493-1 aging test statistical analysis Guide Part 1 Methods (Guideforthestatisticalanalysisofageingtestdata-Part 1 on.