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

GB/T 20111.1-2015

Replacing GB/T 20111.1-2006

**Electrical insulation systems -- Procedures for thermal
evaluation -- Part 1: General requirements -- Low-voltage**

电气绝缘系统 热评定规程 第1部分：通用要求 低压

(English Translation)

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Foreword

GB/T 20111 "Electrical insulation systems - Procedures for thermal evaluation" contains the following sections.

- Part 1. General requirements for low-voltage;
- Part 2. Particular requirements for generic models scattered around the winding applications;
- Part 3. Specific requirements for encapsulated coil models scattered around the winding electrical insulation systems (EIS).

This section GB/T 20111 Part 1.

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

This Part replaces GB/T 20111.1-2006 "electrical insulation Procedures for thermal evaluation - Part 1. General requirements for low-voltage", and GB/T 20111.1-2006 compared, in addition to editorial changes, the major technical changes are as follows.

- Unified will "electrical insulation" to "Electrical insulation systems";
- Remove the "Table 1" (see 2006 edition 3.4);
- Remove the "EIS temperature index" is defined (see 2006 edition 3.5);
- Remove the "EIS relative temperature index" is defined (see 2006 edition 3.6);
- Increased "EIS estimate heat index" is defined (see 3.5);
- Increased "EIS relative thermal index" is defined (see 3.6);
- Remove the "footnote a" (see 2006 edition 4.3);
- Modify the desired heat-resistant grade 120 °C high temperature corresponding to the point (see Table 1, Table 2 of the 2006 edition);
- Added "Table 2" (see Table 2).

This section uses the translation method is equivalent to using IEC 61857-1:2008 "Procedures for thermal evaluation of electrical insulation systems - Part 1. General requirements Low pressure. " Consistency correspondence with international standards in this section of our standards of reference are as follows.

- GB/T 11026.4-2012 heat resistance, electrical insulating materials - Part 4. Ageing ovens - Single - chamber ovens (IEC 60216-4-1:2006, IDT);
- GB/T 11026.7-2014 heat resistance, electrical insulating materials - Part 7. Determine the electrically insulating material is relatively resistant means Number (RTE) (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 Methods (IEC 60493-1:2011, IDT) on the basis of average.

This part is proposed by the China Electrical Equipment Industrial Association.

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

This part manufactured by Shanghai Electric Apparatus Research Institute, Shandong Qilu Motor Co., Ltd., Beijing Electrical Machinery Industry Technology Research Institute of Economy, Beijing Beizhong Steam Turbine Co., Ltd., Shanghai electrical equipment testing is responsible for drafting.

Introduction

This section provides a standard test procedure, according to IEC 60505 by comparing the electrical insulation system (EIS) to evaluate life expectancy Estimated EIS.

One kind EIS contains many different components, the choice of ingredients should be able to withstand all kinds of electric generating electrical products in different parts of the structure, Mechanical and thermal stresses. The useful life of the EIS process depends on the combination of components, each component and interaction between the components of the overall EIS Electrical properties, mechanical properties of the role. Therefore, the provisions of a representative of all the electrical products test is not possible. IEC equipment technical committee Have responsibilities under test and the test procedures to meet their specific application requirements. Through this technology between the Committee and other technical committees Cooperation to continue the work to develop a series of parts, each set forth a particular test and/or applications.

This section allows only approximate comparison, and so can not be fully determined to any characteristic of a particular EIS, which can only be based full-featured extensions Operating experience to be obtained.

Electrical insulation systems - Procedures for thermal evaluation Part 1. General requirements for low-voltage

1 Scope

This section GB/T 20111 specifies the electrical insulation systems (EIS) Universal thermal evaluation and testing procedures for identification, assessment EIS to be established Test procedures and performance comparison of a reference EIS.

This section applies to voltage 1000V and below, the heat factor is the main factor of the aging of existing or proposed EIS used in electrotechnical products.

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.

GB/T 11021-2007 heat resistance, electrical insulation rating (IEC 60085:2004, IDT) IEC 60505:2004 Assessment of electrical insulation and differential (Evaluation and qualification of electrical insulation systems) IEC 60216-4-1 Electrical insulating materials - Thermal resistance - Part 4-1. Ageing ovens - Single - chamber ovens (Electrical insulating materials - Thermal endurance properties - Part 4-1. Ageing ovens - Single chamber ovens) IEC 60216-5 Electrical insulating materials - Thermal resistance - Part 5. Determination of relative thermal index of electrical insulating materials (RTE) [Electrical insulating materials - Thermal endurance properties - Part 5. Determination of relative thermal endurance index (RTE) of an insulating material] the average basis of establishing normal distribution in the test results. IEC 60493-1 aging test statistical analysis Guide Part 1 Methods (Guide for the statistical analysis of ageing test data - Part 1 on. Methods based on mean values of normally distributed test results)

3 Terms and Definitions

The following terms and definitions apply to this document.

Electrical insulation systems electrical insulation system; EIS Electrical equipment used in combination with the conductive portion together comprise one or more electrically insulating material (EIM) is insulated.

Note: In accordance with IEC 60505:2004 different temperature index (ATE/RTE, in accordance with IEC 60216-5) The EIM can be combined into EIS, the heat level may be higher or less than any single component heat levels.

Be evaluated EIS candidate EIS They are assessed in order to determine the heat capacity of the EIS.

Reference EIS reference EIS Known record of operating experience or recognized comparative functional assessment as the basis for assessment and identified the EIS.