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

中华人民共和国国家标准

GB/T 4207-2012/IEC 60112: 2009

Replace GB/T 4207-2003

**Method for the determination of the proof and
the comparative tracking indices of solid
insulating materials**

**固体绝缘材料耐电痕化指数和相比电痕化指数的测
定方法**

(IEC 60112: 2009, IDT)

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China**

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Foreword

This standard is drafted according to rules given by GB/T 1.1-2009.

This standard has replaced GB/T 4207-2003 *Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions*.

Compared with GB/T 4207-2003, the main changed in the standard are:

- a) "Under the humid conditions" has been deleted in the standard name;
- b) "the maximum voltage is up to 600 V" has been deleted in the scope;
- c) Added the "Normative references" in Chapter 2 and "principle" in Chapter 4.
- d) Added the definition of "tracking failure" "air arc" and "sustained combustion" in the terms and definitions (see 3.2, 3.4 and 3.6)
- e) The thickness is specified to be 3 mm or more and the maximum thickness is specified to be 10 mm in this standard. The thickness is specified to be larger than or equal to 3 mm in the former version. The samples with a thickness being less than 3 mm are specified to do test by stacking up in both the former standard and this standard;
- f) The plane size of the sample is recommended to be less than 20 mm×20 mm and 15 mm×15 mm is adoptable in this standard and that is specified to be less than 15 mm×15 mm in the former versions (see Chapter five and the chapter three in version 2003);
- g) In this standard, the minimum purity of the platinum electrode is specified to be 99% and the electrode level blade is specified to be approximately flat and it shall wide about 0.01 mm. ~ 0.1 mm. (see 7.1).
- h) The power is changed to be not less than 0.6 kVA from that being not less than 0.5 kVA in the former version (see 7.2 and the 5.2 in version 2003);
- i) It is specified that "the maximum error of the measuring means for short-circuit current is $\pm 3\%$ " in this standard (see 7.2);
- j) The "Overcurrent relay shall act for 2 seconds at 0.5 A or higher current" in the former version shall be modified to be "when the effective value of the current is 0.50 A, the relative tolerance is $\pm 10\%$ and it shall continue for 2.00 seconds. When the relative

tolerance is $\pm 10\%$, the overcurrent device shall act (see 7.2 and the 5.2 in 2003).

- k) In this standard, the purity of analytical grade anhydrous ammonium is specified to be “not less than 99.8% and the conductivity of deionized water shall not exceed 1 ms / m ”;
- l) The resistivity of solution B is $(1.70 \pm 0.05) \Omega \cdot \text{m}$ in the former version and it is $(1.98 \pm 0.05) \Omega \cdot \text{m}$ in this standard (see 7.3 and the 5.4 in version 2003);
- m) This standard gave specifications for the air speed (see 7.6);
- n) In CTI test, if the material properties of the unknown, the starting voltage is recommended to be 350 V in this standard (300 V in the former version) (see 11.2 and 6.2 in version 2003);
- o) In this standard, it is recommended to measure 100 drops and then measure 50 drops in CTI test, which is contrary to the former version (see 11.1 and 6.2 in version 2003);
- p) The correspondence relationship of this chapter between this standard and the former version is shown in annex NA.
- q) The translation method used in this standard is equal to the used IEC 60112: 2009 (Version 4.1) *Method for determining the comparative and the proof tracking indices of solid insulating materials*.

The standard uses the translation method is equivalent to using IEC 60112: 2009 (Version 4.1) "method is a solid insulating materials - Resistance index tracking index and comparative tracking."

The documents of our country with corresponding relationship to the international documents in the normative reference in this standard are as follows:

- GB/T 16499-2000 The Preparation of safety publication and the use of basic safety publications and group safety publications. (IEC 104 Guide: 1997, NEQ)

Compared with IEC 60112: 2009 (version 4.1), the following editorial changes in this standard have been done:

- Added the formative annex NA and listed the control list between the standard reg number and GB / T 4207-2003 reg.

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

This standard is under the jurisdiction of National technical committee for standardization of electro insulating material and insulation system evaluation (SAC/TC 301).

Draft units of this standard: Guilin Electrical Apparatus Science Academy, Shenzhen Institute of Standards and Technology, Machinery Industry Beijing Electrotechnical Economic Research Institute and Shandong Qilu Motor Manufacturing Co., Ltd.

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Previous versions that this standard replaces are as follows:

-GB/T 4207-1984 and GB/T 4207-2003.

Method for the determination of the proof and the comparative tracking indices of solid insulating materials

1 Scope

This standard specifies the method of test for the determination of the proof and comparative tracking indices of solid insulating materials on pieces taken from parts of equipment and on plaques of material using alternating voltages.

The standard provides for the determination of erosion when required.

NOTE 1 The proof tracking index is used as an acceptance criterion as well as a means for the quality control of materials and fabricated parts. The comparative tracking index is mainly used for the basic characterization and comparison of the properties of materials.

Test results cannot be used directly for the evaluation of safe creepage distances when designing electrical apparatus.

NOTE 2 This test discriminates between materials with relatively poor resistance to tracking, and those with moderate or good resistance, for use in equipment which can be used under moist conditions. More severe tests, of longer duration are required for the assessment of performance of materials for outdoor use, utilizing higher voltages and larger test specimens (see the inclined plane test of IEC 60587). Other test methods such as the inclined method may rank materials in a different order from the drop test given in this standard.

2 Normative references

The articles contained in the following documents have become this document when they are quoted herein. For the dated documents so quoted, all the modifications (including all corrections) or revisions made thereafter shall be applicable to this document.

GB/T 17037.1-1997 Injection moulding of test specimens of thermoplastic materials—Part 1: General principles and moulding of multipurpose and bar test



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