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

GB/T 4585.1-1984

Replacing GB/T 4585-2004

**Artificial pollution tests on high-voltage ceramic and glass
insulators to be used on a. c. systems**

(English Translation)

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Correspondence

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 4585-2004 "Artificial pollution test for high voltage insulators for AC systems" and is consistent with GB/T 4585-2004.

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

- Extend the voltage level in the scope to UHV (see Chapter 1, Chapter 1 of the 2004 edition);
- Deleted the chapter "Purpose" (see Chapter 2 of the 2004 edition);
- Change the term "creepage distance of insulators" to "unified creepage distance" (see 3.3, 3.3 of the 2004 edition);
- Added the term "gray density" (see 3.17);
- Added the term "hydrophobic migrating material" (see 3.18);
- Added explanation on the purpose of pollution test (see 4.1);
- Added meteorological correction to the requirements for test equipment (see 4.4.2);
- Added the relationship curve between the gray density and gray scale of the dirty liquid (see 6.3);
- Added quantitative brushing method to the solid layer method (see 6.4.2);
- The general requirements for wetting of the dirt layer are detailed (see 6.6, Chapter 17 of the 2004 edition);

--- Added common tolerance tests and acceptance criteria for Procedure A and Procedure B (see Chapter 7);

--- Added the determination of 50% withstand voltage of insulators (see 7.2);

--- Added "Supplementary information on artificial pollution test for HTM insulators" (see Appendix D).

This document is modified to adopt IEC 60507:2013 "Artificial pollution tests for high voltage porcelain and glass insulators for AC systems".

This document has made the following structural adjustments compared to IEC 60507:2013.

--- Deleted 6.8 of IEC 60507:2013;

--- Added Chapter 7;

--- Appendix A corresponds to Appendix E of IEC 60507:2013;

--- Appendix B corresponds to Appendix A of IEC 60507:2013;

--- Appendix C corresponds to Appendix B of IEC 60507:2013;

--- Added Appendix D;

--- Appendix E corresponds to Appendix C of IEC 60507:2013;

--- Appendix F corresponds to Appendix D of IEC 60507:2013.

The technical differences between this document and IEC 60507:2013 and their reasons are as follows.

--- Added normative references GB/T 2900.8 (see Chapter 3) and DL/T 810-2012 (see 6.3);

--- Changed the definition of unified creepage distance (see 3.3) to make it consistent with GB/T 26218.1-2008;

--- The definition of the shape factor of the insulator has been changed (see 3.4) to make it conform to the actual usage habits in my country;

--- Added the term "hydrophobic migration material" (see 3.18), taking into account the test content of HTM insulators;

--- The normative reference GB/T 311.1-2012 replaces IEC 60071-1 (see 4.4.1) to apply my country's technical conditions and the actual situation of the power grid;

--- The normative reference GB/T 26218.1-2010 replaces IEC/T S60815-1 (see 5.1, 6.1) to apply to my country's technical conditions and actual power grid conditions;

--- Added the relationship curve between the gray density and gray scale of the dirty liquid (see 6.3), based on my country's test experience;

- Added relevant statements on the test method for HTM insulators (see 6.4.1), based on my country's test experience;
- Added quantitative brushing method to the solid layer method (see 6.4.2). my country's testing agencies usually use the quantitative brushing method for testing;
- Added relevant provisions on the surface fog of the test sample (see 6.6), based on my country's test experience;
- Added the solid layer method tolerance test and acceptance criteria common to Procedure A and Procedure B (see Chapter 7), based on the relevant tests in my country the actual situation;
- The normative reference GB/T 16927.1-2011 replaces IEC 60060-1 (see 7.2, C.4) to apply to my country's technology conditions and grid realities;
- Added "Supplementary information on artificial pollution test for HTM insulators", considering the artificial pollution test of HTM insulators.

Requirements (see Appendix D).

The following editorial changes were made to this document.

- This document incorporates the contents of IEC 60507:2013/COR1:2018;
- Added a note on recommending the use of a long string of test pieces close to the actual configuration for testing (see 4.1);
- Deleted Notes 1 to 3 in meteorological correction (see 4.4.2 of IEC 60507:2013);
- Deleted the two notes on tonoko (see 6.3.3 of IEC 60507:2013);
- Added notes on the pollution layer conductivity method (see 6.5.1);
- Deleted the note about the plastic tent replacing the fog chamber (see 6.6 of IEC 60507:2013);
- Added the note on the saturation time of insulators (see 6.7.3);
- Deleted the note on the method for determining the withstand characteristics of insulators (see 6.8 of IEC 60507:2013).

1 Scope

This document specifies the artificial pollution test procedure applicable to insulators and bushings for overhead lines, substations, traction lines.

This document is applicable to porcelain, glass and other insulation materials used outdoors and exposed to polluted atmosphere in AC systems with a nominal voltage of 1000V and above.