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

GB/T 44179-2024

**Composite hollow core station post insulators with a. c. voltage
greater than 1 000 V and d. c. voltage greater than 1 500 V -
Definitions, test methods and acceptance criteria**

(English Translation)

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Figure A.2 Load definitions and load relationships in GB/T 21429-2008

Figure A.3 Relationship of bending load

Figure A.4 Load definition and load relationship comparison diagram

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 is modified to adopt IEC 62772:2023 "Air conditioners for substations with AC voltages above 1000V and DC voltages above 1500V" Definitions, test methods and acceptance criteria for core-post composite insulators.

The technical differences between this document and IEC 62772:2023 and their reasons are as follows.

- a) GB/T 22079 replaces IEC 62217 (see Chapter 5, Chapter 6, and Chapter 8) to adapt to my country's technical conditions;
- b) GB/T 25096-2010 replaced IEC 62231:2006 (see 7.3, 8.3.2.1, 9.3) to adapt to my country's technical conditions;
- c) The line "Coupling agent and application method" in the interface (see Table 1 of IEC 62772:2023) has been deleted to adapt to the actual situation in my country;
- d) Change "hydrophobic migration test" to "hydrophobic test" (see Table 1, 8.4.5), and change "see IEC TR62039" to "according to GB/T 22079" (see 8.4.5) to adapt to the actual test technical conditions in my country;
- e) The qualifier that the mechanical type of hollow post composite insulators is determined by the "height" characteristic has been deleted. "Only for compression and flexural resistance Load test" (see 7.3 of IEC 62772:2023), other mechanical properties are also affected to varying degrees by the "height" characteristics;
- f) "The manufacturer shall specify the SML value of the test piece" (see 8.2.2 of IEC 62772:2023) has been deleted and has been added to the drawings and markings (see 4 the necessary parameter values need to be provided in the chapter;
- g) Added normative reference GB/T 18851.1-2012 (see 8.3.1.2, 8.3.2.1) to provide

standard for dye penetration test method.

quasi basis;

h) GB/T 19519-2014 replaced IEC 61109 (see 8.3.1.2, 8.3.2.1) to adapt to my country's technical conditions;

i) Added "If the products are of equal diameter, only one sample shall be tested" (see 8.3.1.2, 8.3.2.1 and 8.3.3.1) to accommodate the actual situation in our country;

j) Added "tracking and corrosion resistance test for umbrella cover materials" (see 8.4.6) to assess the relevant performance of umbrella and umbrella cover materials;

k) Deleted the following. "Theoretical calculation may replace the specified tensile load test, compression and flexural endurance test after agreement between the supplier and the buyer" (see 9.3 of IEC 62772:2023) to adapt to the actual situation in my country;

l) GB/T 8287.1-2008 replaced IEC 60168 (see 9.4.2~9.4.6) to adapt to my country's technical conditions;

m) Deleted "If applied to a DC system, the DC voltage test shall be substituted for the AC voltage test" (see IEC 62772:2023 9.4.5 and 9.4.6), which description already appears in the general provisions (see 9.4.1);

n) Added technical content of appearance inspection (see 11.2) to adapt to the actual situation in my country.

The following editorial changes were made to this document.

a) Added necessary parameter values in Chapter 4 Drawings and Markings, such as SML, MML, MDCL, MDTOL, STL, MSP, etc.

Body description;

b) Change the general technical description of hollow post composite insulator assembly components in Figure 1 from footnote 1 to footnote 6 to footnote 1 to footnote 6.

Note 4:

c) Added a note in 8.5.3 Water diffusion test to explain the scope of water diffusion test samples;

d) Deleted Appendix A (informative) "Filling material identification" and Appendix C (informative) "Hollow pillar composite insulation" of IEC 62772:2023 "Schematic diagram of sub-assembly components";

e) The informative references GB/T 311.1-2012 and GB/T 8287.2-2008 were added to the references.

Introduction

The hollow post composite insulator for power stations is composed of a protective silicone rubber umbrella and an insulating hollow tube that bears mechanical loads.

The mechanical load is transferred to the tube by the end fittings. The interior of the hollow tube is completely filled with insulating material and the tube is made of resin impregnated fiber.

In substations, power station hollow post composite insulators are used as typical post insulators. Insulator materials and interfaces are based on GB/T 22079 conducts design tests. Some tests are classified as "design tests". These tests only need to be performed on insulators of the same design.

All design tests for hollow post composite insulators for power stations shall be carried out in accordance with the general provisions of GB/T 22079.

In terms of the design test, the time effect on the overall power station hollow post composite insulator and its components (tube material, umbrella cover, interface, etc.) to ensure a satisfactory service life under normal stress operating conditions.

This document involves GB/T 21429-2008 and GB/T 25096-2010.

Silicone rubber sheath materials with hydrophobicity and hydrophobicity migration properties (HTM) are preferred for hollow post composite insulators used in power stations.

Silicone rubber is a widely recognized effective method to protect against severe pollution.

The salt spray test specified in GB/T 22079 is used to quantify the hydrophobic migration characteristics.

The hollow post composite insulator for power stations can be used in both AC and DC systems.

Tracking and erosion tests are used to determine the minimum requirements for resistance of a material to tracking and erosion.

AC voltage higher than 1000V and DC voltage higher than 1500V hollow post composite insulator for substation Definitions, test methods and acceptance criteria

1 Scope

This document applies to hollow post composite insulators for power stations, which are hollow insulating tubes, insulating the hollow post composite insulator for power stations defined in this document is composed of filling material, umbrella cover made of silicone rubber material and end metal accessories.

Generally used for outdoor or indoor operation at an AC voltage higher than 1000V or a DC