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

GB/T 32586-2016

**Railway applications -- Fixed installations -- Specific
requirements for composite insulators used for overhead
contact line systems for electric traction**

轨道交通 地面装置 电力牵引架空接触网系统用复合绝缘子的特定要求

(English Translation)

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Foreword

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

This standard uses the redrafting method to modify the use of IEC 62621:2011 "railway ground device electric traction overhead contact network Specific requirements for composite insulators for systems.

There are technical differences between this standard and IEC 62621:2011. These differences involve the vertical margin of the margins of the clauses.

(-) Marking. The technical differences between this standard and IEC 62621:2011 and their reasons are as follows.

--- Modified the DC voltage range of composite insulators for use in subways (see Chapter 1).

---About the normative reference documents, this standard has made technical adjustments

to adapt to China's technical conditions, adjustments the situation is reflected in Chapter 2, "Regulatory References". The specific adjustments are as follows.

- Replace ISO 37 with GB/T 528 (see Table 2);
- Replace IEC 60850:2007 with GB/T 1402-2010 (see 4.2);
- Replace IEC 60587 with GB/T 6553 (see Table 2);
- Replace IEC 62217:2005 with GB/T 22079-2008 (see 4.2 and Table 2);
- Replace IEC 61467:2008 with GB/T 25084-2010 (see 4.9 and 4.10);
- Replace IEC 60815-1:2008 with GB/T 26218.1-2010 (see 4.2 and 4.4);
- Replace IEC/T S60815-3:2008 with GB/T 26218.3-2011 (see 4.4);
- Replace IEC 62497-1:2010 with GB/T 32350.1-2015 (see 4.2 and 4.3);
- Replace IEC 60913 with GB/T 32578 (see 4.2, 4.5 and 4.10).
- Revised the terminology of composite insulators (see 3.1).
- Revised the pollution level and creepage distance requirements, and implemented IEC 62497-1:2010 to implement GB/T 26218.1-2010, to adapt to the domestic high-voltage electrical appliances and rail transit industry (see Chapter 4).

This standard also made the following editorial changes.

- Modified the standard name structure and simplified it as a composite insulator for the electric traction overhead contact network system of rail transit ground installations Specific requirements";
 - Removed the introduction of IEC 62621:2011;
 - Revised the title of 4.2, from "environmental conditions" to "working conditions" to accommodate content position adjustment (see Chapter 4);
 - Revised the title of 4.3, changed from "Power Supply Voltage and Frequency" to "Electrical Performance" to accommodate content position adjustment (see Chapter 4);
 - Modified the position of 4.3 for the voltage and frequency, the rated impulse voltage of the line and the electrical clearance of the line, etc.
- Moved to 4.2 because 4.3 is only a requirement for the performance of composite insulators (see Chapter 4);
- Removed Note 5 of 4.4, as part of the IEC 60815 DC system has not been developed (see 4.4 of IEC 62621:2011);
 - Added D.3 sub-sub-item number, in line with Chinese customs (see Appendix D).

1 Scope

This standard specifies the characteristics, tests and standards of composite insulators (hereinafter referred to as insulators) for rail transit electric traction overhead contact network systems.

Awareness, packaging, transportation, installation and maintenance.

This standard specifies product characteristics, test methods and acceptance criteria.

This standard applies to insulators with a nominal voltage higher than 1000V AC voltage or not less than 1500V DC voltage. For beyond this the special application of the high torsional load specified by the standard is determined by the supplier and the buyer to determine the critical load layout.

This standard applies to composite insulators as defined in 3.1, excluding other polymer insulators.

This standard applies to the design and manufacture of new or modified electric traction overhead contact network system insulators.

The test of this standard is used to guide both the supply and demand sides to test the performance of the insulator products in the rail transit environment. The user may propose other tests.

Verify the suitability of the insulator under special operating conditions.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 528 Determination of tensile stress-strain properties of vulcanized rubber or thermoplastic rubber (GB/T 528-2009, ISO 37:2005, IDT) GB/T 1402-2010 Rail Traction Power Supply System Voltage (IEC 60850:2007, MOD) GB/T 6553 Test methods for assessing resistance to electrical traces and s (GB/T 6553-2014, IEC 60587:2007, IDT) GB/T 22079-2008 Indoor and outdoor polymer insulators with nominal voltages above 1000V are generally defined and tested.

Law and acceptance criteria (IEC 62217:2005, MOD) GB/T 25084-2010 Insulator string and insulator string AC power frequency for overhead lines with nominal voltage higher than 1000V Arc test (IEC 61467:2008, MOD) GB/T 26218.1-2010 Selection and sizing of high-voltage insulators for use under filth conditions Part 1. Definitions, information and general principles (IEC/T S60815-1.2008, MOD) GB/T 26218.3-2011 Selection and sizing

of high-voltage insulators for use under s Composite insulator (IEC/T S60815-3:2008, MOD) GB/T 32350.1-2015 Rail insulation - Part 1. Basic requirements Electrical and electronic equipment clearance Creepage distance (IEC 62497-1:2010, MOD) GB/T 32578 rail transit ground unit electric traction overhead contact network (GB/T 32578-2016, IEC 60913.

2013, MOD)

IEC 60826 overhead transmission line design standards

(Design criteria of overhead transmission lines) IEC 61109:2008 Suspension/tensile composite insulation for AC systems with nominal voltages above 1000V for overhead lines

Sub-definition, test methods and acceptance criteria

(Insulators for overhead lines-Composite suspension and tension insulators for a.c. systems with a nominal voltage greater than 1000V-Definitions, test methods and Acceptance criteria) IEC

61952:2008 Line-column composite insulation for AC systems with nominal voltages up to 1000 V for overhead lines Sub-definition, test methods and acceptance criteria

(Insulators for overhead lines-Composite line post insulators for a.c.

Systems with a nominal voltage greater than 1000V-Definitions, test methods and acceptance criteria)

Rubber and rubber products - Determination of tear strength - Part 1 . Pants, right

angles and crescents (Rub-Ber, vulcanized or thermoplastic-determination of tear strength-Part

1: Trouser, angle and crescent Testpieces)

3 Terms and definitions

The following terms and definitions as defined by IEC 61109:2008 and IEC 61952:2008 apply to this document.

Composite insulator the composite insulator shall consist of at least two insulating parts, namely a mandrel fitted with an end attachment and an umbrella sleeve.

Note: For example, a composite insulator can be constructed by mounting a single umbrella group on a mandrel, in which case the intermediate sheath may or may not be present; or the umbrella cover may be divided into a whole or a number Piece, directly molded or cast on the mandrel.

Normal working load (load) nominal design load the load specified by the user is related to the daily continuous dynamic load.

4.1 Overview

The insulating mandrel of the composite insulator is subjected to mechanical load, the polymer umbrella cover protects the mandrel, and the load is transmitted to the mandrel through the end fitting. due to Composite materials and polymers are lightweight, resistant to damage and resistant to contamination, so in overhead contact network systems (including segmented insulator insulators and support junctions) Widely used in