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

GB 12528.11-2003

**Insulated cables (wires) for railway vehicles of rated voltages
up to and including 3 kV Amendment 1: Cross-linked polyolefin
insulated cables (wires) for railway vehicles**

(English Translation)

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Foreword

This Amendment is the supplement to GB 12528.1-1990 Insulated cables (wires) for railway vehicles of rated voltages up to and including 3 kV -- Part 1. General rules. It is used to supplement the provisions related to the cross-linked polyolefin insulated cables (wires) for railway vehicles that are not covered in GB 12528.1-1990.

This Amendment shall be under the jurisdiction of the National Electric Wire Electric Cable Standardization Committee.

The drafting organizations of this Amendment. Shanghai Nan Yang Electrical Appliance Co., Ltd., and Tianjin Jinshan Wire & Cable Co., Ltd.

1 Scope

This document specifies the models, specifications, technical requirements and test methods, marks and packaging of the cross-linked polyolefin insulated cables (wires) for railway vehicles of rated voltages up to and including 3 kV.

This document applies to the cables for various vehicles of rated voltages up to and including 3 kV and the electric equipment used in the power distribution system, control system and signal system of the urban railway vehicles. It is especially applicable to narrow-space and places where require low smoke, halogen-free or flame retardant.

2 Normative references

The articles contained in the following documents have become part of this standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this standard.

GB/T 2951.1 Common test methods for insulating and shielding materials of electric cables Part 1. Methods for general application Section one. Measurement of thickness and overall dimensions -- Tests for determining the mechanical properties (GB/T 2951.1-1997, idt IEC 811-1-1.1993)

GB/T 2951.2 Common test methods for insulating and shielding materials of electric cables -- Part 1. Methods for general application -- Section two. Thermal ageing methods (GB/T 2951.2-1997, idt IEC 811-1-2.1985)

GB/T 2951.4 Common test methods for insulating and shielding materials of electric cables Part 1. Methods for general application (GB/T 2951.4-1997, idt IEC 81-1-4.1985)

GB/T 2951.5 Common test methods for insulating and shielding materials of electric cables -- Part 2. Methods specific to elastomeric compounds section one -- Ozone resistance test -- Hot set test--Mineral oil immersion test (GB/T 2951.5-1997, idt IEC 811-2-1.1986)

GB/T 2951.6 Common test methods for insulating and shielding materials of electric cables Part 3. Methods specific to PVC compounds section one. Pressure test at high temperature -- Test for resistance to cracking (GB/T 2951.6-1997, idt IEC 811-3-1.1985)

GB/T 3048.4 Test methods for determining electrical properties of electric cables and wire -- Measurement of D.C. resistance of conductors

GB/T 3048.5 Test methods for determining electrical properties of electric cables and wires -- Determining insulation resistance-Comparison-galvanometer method

GB/T 3048.8 Test methods for determining electrical properties of electric cables and wires -- A.C. voltage tests

GB/T 3048.9 Test methods for determining electrical properties of electric cables and wires -- A.C. spark test of insulated cores

GB/T 3956 Conductors of insulated cables (GB/T 3956-1997, idt IEC 228.1978IEC 288A.1982)

GB/T 4909.2 Test methods for bare wires; Measurement of dimensions

GB/T 4910 Tinned round copper wire

GB 6995.1 Markings for electric cables and wires. Part 1. General requirements

GB 6995.3 Markings for electric cables and wires. Part 3. Identifications of cables and wires

GB 12528.1 Insulated cables (wires) for railway vehicles of rated voltages up to and including 3 kV -- General

GB/T 17650 (All parts) Test on gases evolved during combustion of materials from cables (idt IEC 60754)

GB/T 17651 (All parts) Measurement of smoke density of cables burning under defined conditions. Part 1. Test apparatus (idt IEC 61034)

GB/T 18380.1 Tests on electric cables under fire conditions - Part 1. Test on a single vertical insulated wire or cable (GB/T 18380.1-2001, idt IEC 60332-1-1993)

JB/T 8137 (All parts) Delivery drums for wires and cables

TB/T 1484.1-2001 Specification for cables on board rolling stock -- Part 1. Standard wall insulation cables up to AC 3 kV

NFF 63-808/5.1992 Railway rolling stock -- Halogen free, electrical conductors and cables with thin insulation and protective layers.

5.1.1 The conductor of the WDZ-DCYJ-125 Type cables shall comply with the provisions of the fifth kind of soft copper conductor, as specified in GB/T3956. The conductor of the WDZ-DCYJ/B-125 and WDZ-DCYJ/B-150 cables shall comply with the provisions of the second kind of stranded conductor, as specified in GB/T3956.

5.1.2 The tinned round copper wire which is in line with GB/ T4910 is used in the single

conductor. The conductor structure is specified in Table 2.

5.1.3 The conductor surface shall be smooth and clean, free from oil stains, no burrs

and sharp edges that may damage the insulation, no raised or fractured single line.

5.1.4 A layer of isolation layer made of suitable materials is allowed on the conductor

surface.

5.2.1 The insulating layer of the WDZ-DCYJ-125 Type cables is made of 125°C

cross-linked polyolefin insulated materials. The insulating layer of the WDZ-DCYJ/B-125

Type cables is made of high strength 125°C cross-linked polyolefin insulated materials.

The insulating layer of the WDZ-DCYJ/B-150 Type cables is made of high strength 150°C

cross-linked polyolefin insulated materials. The insulation thickness shall meet the

requirements in Table 2, with the mean value not less than the specified nominal value.

The thickness of the thinnest point shall not be less than 90% of the nominal value - 0.1 mm.

5.2.2 Non-electrical performance of the insulation shall comply with the provisions in

Table 3.

5.2.3 Insulation surface shall be round, smooth and no bump. The insulation layer of

Model WDZ-DCYJ-125 Type cable is black. The insulating layer of the WDZ-DCYJ/B-125

Type and WDZ-DCYJ/B-150 Type cables, in general, shall be light brown and it is allowed

to determine the color according to the Agreement between the Supplier and the

Purchaser.