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**NATIONAL STANDARD OF THE
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GB/T 42740-2023

Safety guidelines for wires and cables used in rail transport

轨道交通用电线电缆安全导则

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Foreword

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1 Scope

GB/T 42740-2023 gives the safety guidelines for wires and cables in rail transport. Cable is the material most likely to kill people in a rail fire, not because it starts the fire but because it propagates it along the tunnel and because burning insulation produces smoke that blinds and gases that incapacitate before the heat reaches anyone - which is why rail cable is specified for low smoke and zero halogen before anything else. It also has to survive vibration, oil, ozone and thirty years of thermal cycling. The standard sets the environmental conditions along a rail line, the classification and identification of cable products, the general rules for selecting them, and the general rules for the safety-related aspects of their design: appearance, rated voltage, current carrying capacity, temperature effects, mechanical stress, shielding, and the fire performance. It took effect on 1 December 2023.

This document specifies the use environment, classification and labeling, general rules for selection, general rules for design, laying and protection, and inspection of wires and cables for rail transit: Check the requirements related to safety factors such as testing, packaging, transportation and storage: This document is applicable to the production, use and acceptance of wires and cables for rail transit engineering and equipment: This document does not apply to the production, use and acceptance:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for

undated reference documents, the latest version (including all amendments) is applicable to this document: GB/T 2900:

10 Electrotechnical terminology cables GB/T 6995:

3 Wire and cable identification marking methods - Part 3: Wire and cable identification markings GB/T 6995:

4 Wire and cable identification marking method - Part 4: Electrical equipment wire and cable insulation core identification marking GB/T 6995:

5 Identification marking methods for electric wires and cables - Part 5: Identification markings for insulated cores of power cables

GB/T 10411-2005 Urban Rail Transit DC Traction Power Supply System

GB/T 12527 Aerial Insulated Cables with Rated Voltage 1kV and Below

GB/T 19666-2019 General rules for flame-retardant and fire-resistant wires and cables or optical cables

GB/T 28427 27.5kV single-phase AC XLPE insulated cables and accessories for electrified railways

GB 31247-2014 Classification of combustion performance of electric and optical cables

GB/T 34016-2017 General rules for rodent and termite-proof wires and cables

GB 50157 Code for design of subway

JB/T 8996 Guidelines for Selection of High Voltage Cables TB10006 Railway

Communication Design Code TB10007 Railway Signal Design Code
exceeding 450/750V-Guidetouse)

3 Terms and Definitions

The terms and definitions defined in GB/T 2900:10 apply to this document:

4 Environmental conditions along the rail transit

1 Environmental conditions along the rail transit project Rail transit is divided into four categories: main line railway, urban (suburban) railway, intercity rail transit and urban rail transit: The tracks are laid underground,