The cables in the cable tray must be flame retardant

Article Overview

Cables installed inside cable trays must be flame-retardant and meet fire-resistance standards to prevent fire propagation and ensure safety.

Fire Safety Standards

Cables in cable trays are required to have flame-retardant properties to limit fire spread and reduce smoke generation. According to NFPA 130, cables must exhibit a flame travel distance of no more than 1.5 meters and produce low smoke, with a maximum peak optical density of 0.50 and average optical density of 0.15 when tested under NFPA 262 protocols. Fire-resistive cables are also tested for at least one hour of operation in vertical and horizontal orientations to ensure safety in industrial and commercial occupancies .

Cable Types and Ratings

o Tray Cable (TC): Factory-assembled with two or more insulated conductors under a non-metallic jacket, rated for 600 volts, and suitable for industrial power or control circuits. TC cables are UL listed and flame-retardant, making them appropriate for cable tray installations .
o Instrumentation Tray Cable (ITC): Used for instrumentation circuits, available in shielded or unshielded forms, with 300-volt insulation and flame-retardant properties .
o Indoor Fiber Optic Cables: Must have a flame-retardant jacket for use in buildings, including deployment in cable trays or conduits. Plenum-rated cables provide higher flame and smoke resistance compared to riser-rated cables . All cables used in cable trays should be UL listed and marked as cable tray rated, ensuring compliance with flammability, mechanical resistance, and temperature limitations .

Installation Considerations

o Maintain adequate spacing between cables to prevent heat accumulation and allow airflow, especially in perforated or wire mesh trays .
o Seal openings where cable trays pass through walls, floors, or shafts using firestopping materials such as fire-rated boards, firestop packs, or mineral wool to prevent fire spread .
o Inspect trays and cables periodically for corrosion, deformation, or coating damage to ensure long-term fire safety .

Summary

Using flame-retardant cables in cable trays is mandatory for fire safety, compliance with NFPA and UL standards, and to minimize the risk of fire propagation. Proper selection, installation, and maintenance of these

cables are essential to ensure both operational reliability and safety in building and industrial environments .

Why Fire Resistance Matters for Cable Trays in High-Risk Areas Fire resistance is a key

In our previous Keystone Academy blog, "What is the Difference Between FRT and FR Cable?", we shared

What Are Flame-Retardant Cables? The core design of flame-retardant cables focuses on preventing flame

Fire Resistance Testing of Cable Trays ensures they don"t fuel fires or emit

In this guide, I will break down the IEC 60332 standards, explain why bundled cable testing (Part 3) is the real hero of

The important considerations for cable trays are their resistance to fire, the potential for ignition and propagation of cable fire between

They must self-extinguish and prevent fire from traveling up the riser between the floors or elevator shafts. A typical jacket material

If not designed and installed properly, wiring inside cable trays may pose hazards such as

The test determines the flame propagation tendency of single conductor and multiconductor cables intended for use in cable trays in

Learn about IEC 60332, the international standard for flame retardant cable testing. Understand its types, importance, and how it

For control cables in cable trays, specify IEC 60332-3 Category A or B. Category A uses a higher air flow and a longer flame

Fire retardant cables are specially designed to resist the spread of flames and limit fire propagation. They are crucial

Focusing on low-smoke, halogen-free, flame-retardant cables, we analyze the effects of cable loading and

Combustible cable jackets may catch on fire and cable fires can thus spread along a cable tray within a structure. This is easily

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When a wire breaks and is touching the metal tray, there must be a form of conducting the current out of it. If the path

As an industry leader in cable tray, Eaton offers one of the widest ranges of cable management solutions available in the market

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