

Fireproof cable trays made of magnesium oxide composite material



Overview

Tianlai Heavy-Duty Industrial Fireproof Cable Tray System Guangdong Tianlai Steel Cable Tray Co., Ltd., established in 2002, specializes in heavy-duty indus.

Key Takeaways

Magnesium oxide (MgO) provides exceptional fireproofing and insulation for cable trays, ensuring circuit integrity and safety in extreme conditions.

Construction and Materials

Fireproof cable trays using magnesium oxide typically employ mineral insulated (MI) cables, where copper or stainless steel conductors are surrounded by magnesium oxide insulation and enclosed in a metal sheath such as copper or aluminum.

The Mg

O fills the space between the conductor and the sheath, providing mechanical stability, electrical insulation, and fire resistance. Some systems also use mica tape with metal cladding or low-smoke halogen-free jackets for additional protection in exposed installations.

Fire Resistance and Safety

Magnesium oxide has a very high melting point ($\sim 2,852^{\circ}\text{C}$) and is non-combustible, allowing cables and trays to maintain operation during fires.

M

l cables can operate normally at 250°C and maintain circuit integrity for up to 30 minutes at 1,000°C, ensuring critical systems remain functional during emergencies.

Mg

O insulation does not produce toxic smoke or gases, making it safe for confined or hazardous environments. Applications MgO-insulated fireproof cable trays are widely used in: High-rise buildings, airports, and tunnels for life-safety systems Industrial plants, chemical processing, and offshore oil rigs where fire, moisture, and chemical resistance are critical Nuclear power stations and substations requiring long-term durability and corrosion resistance Aerospace and defense systems for extreme temperature and radiation-resistant applications Advantages Thermal stability: Maintains performance under extreme heat Electrical insulation: High dielectric strength prevents leakage and ensures system stability Chemical and moisture resistance: Suitable for wet or corrosive environments Long lifespan: Can last 30 years or more with proper installation Mechanical strength: MgO enhances cable flexibility and resistance to wear and pressure Additional Fireproofing Options Some systems, like Unifrax FyreWrap®, provide flexible insulation wraps around cable trays using magnesia-based thermal insulation, encapsulated in aluminum foil and fiberglass scrim for added fire and moisture protection.

Other coatings and tapes, such as FLAMMOTECT-A and DG-CR 0. 7, can be applied to cable trays to prevent flame propagation and enhance environmental resistance.

Summary

Fireproof cable trays made with magnesium oxide offer superior fire resistance, electrical insulation, and durability compared to traditional organic insulation. They are ideal for critical infrastructure, industrial, and high-risk environments, ensuring circuit integrity, safety, and long-term reliability even under extreme heat, chemical exposure, or mechanical stress.

Article Content

Tianlai Heavy-Duty Industrial Fireproof Cable Tray System

Guangdong Tianlai Steel Cable Tray Co., Ltd., established in 2002, specializes in heavy-duty industrial steel fireproof ventilated/perforated cable tray trunking utility management systems.

Heavy-duty Magnesium Composite Utility Fireproof Cable Tray Trunking

The cable support systems come in a range of profiles, depth and load capabilities to suit the needs of installers working on commercial, industrial, mining or other types of sites.

Ebo Systems

Our GRP cable trays provide outstanding resistance to corrosive environments, extreme temperatures, and heavy loads, ensuring reliable and durable protection

Suppression of cable tray fire in utility tunnel power compartments ...

Utility tunnel cable systems face critical fire safety challenges due to dense cable arrangements and complex flame spread dynamics. This study investigates the suppression

Fire resistant cable tray | Hermi-solutions

Cable trays are intended for the construction of fire-resistant cable paths with surface cable laying. Cable paths are constructed as standard or lightweight

MgO Powder Insulated Cable

Fireproof cable, often called mineral cable or MI cable abroad and “mineral insulated cable” in China, utilizes magnesium oxide as its insulation. It's notable for its

Applications and Benefits of Magnesium Oxide in Cables

Magnesium oxide's non-combustible nature and ultra-high melting point make it an outstanding material for fireproofing. Unlike polymer-based insulation that melts or releases toxic

Fire-Resistant Cable Trays in High-Risk Environments

FRP cable trays are a composite material made from fiberglass and resin. They are lightweight, corrosion-resistant, and non-conductive, making

Exploring the Benefits of MgSO₄ Fireproof Magnesium

Because it is made of magnesium sulfate instead of magnesium oxide. What is MgSO₄ fireproof MgO board made of? It is made of High Purity

Fireproof Cable Trays Acceptance: Standards for Safety

Ensure safety and durability with this comprehensive guide to fireproof cable trays acceptance. Learn coating processes, inspection standards, and

Suppression of cable tray fire in utility tunnel power compartments ...

1. Introduction The power compartments of urban underground utility tunnels represent high-risk fire environments due to the dense arrangement of multi-layer cable trays carrying high

Magnesium Oxide as a Flame Retardant Additive in Cables

As safety standards and environmental regulations for cable materials become more stringent, the demand for efficient and eco-friendly flame retardant additives is rising. Magnesium

Electrical Cable Tray Fire Protection

Cable trays encased with calcium silicate insulating panels with calcium silicate sleepers to hold cables away from bottom of the cable tray Trays with exterior surfaces made of galvanized

Understanding Fireproof Cable Trays: Standards, Properties, and ...

These trays are widely used in industrial, commercial, and outdoor installations where safety and durability are critical. Suppliers offer various types of fireproof cable trays in bulk, each

Magnesium oxide board – Hebei Baohang Fireproof

DC-A1-YD-Ba type fireproof sealing board (inorganic fireproof partition) is made from magnesium oxide as the main raw material, mixed with a certain proportion of

Why MGO Board Is the Ultimate Fireproof Material for

MGO Board: Superior Fireproof Material for Walls | Fire Safety Discover why MGO board is the ultimate fireproof material for walls. Learn about

Everything You Need to Know About MgO Bords

Magnesium oxide boards have all the features required for sustainable construction materials. The material is resistant to extreme heat, moisture, and noise. It does not allow pests and

Why MgO Boards Outperform Traditional Fire-Resistant Materials:

Magnesium oxide fire-resistant boards offer unique advantages over standard building materials. They don't burn or feed fires because of their non-combustible nature. On top of that,

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

