

# Cable trays are made with VCI bimetallic coating

## Article Overview

Cable trays with VCI bimetallic coating offer superior corrosion resistance, long service life, and environmental safety, making them ideal for harsh and coastal environments.

## Composition and Structure

VCI bimetallic coatings are typically composed of zinc powder (20-40 parts), aluminum powder (10-20 parts), a binder (30-50 parts), and a VCI sustained-release agent (5-15 parts), with the binder often being a pre-hydrolyzed siloxane product. This combination forms a dense, crosslinked -Si-O-Si- network that adheres strongly to the metal substrate, providing excellent initial corrosion resistance and long-term protection. The flaky structure of zinc and aluminum powders enhances the coating's ability to resist salt spray and other corrosive environments.

## Corrosion Resistance and Protective Mechanism

VCI (Vapor Corrosion Inhibitor) coatings protect cable trays through a dual mechanism:

- o **Barrier Protection:** The metallic coating forms a dense layer that physically shields the steel substrate from moisture, salts, and acids.
- o **VCI Atmosphere:** VCI molecules are released from the coating, diffusing into enclosed spaces, scratches, and welding points, providing cathodic protection and self-healing for minor surface damage. This ensures uniform corrosion resistance across the entire tray, including hard-to-reach areas. The coating is non-toxic, odorless, UV-resistant, and environmentally friendly, and it can be combined with organic coatings to further enhance resistance to acids, alkalis, and heavy corrosion media.

## Advantages for Cable Tray Applications

- o **Extended Service Life:** The combination of zinc, aluminum, and VCI inhibitors significantly prolongs the lifespan of cable trays, especially in coastal or industrial environments.
- o **Strong Adhesion:** The coating adheres tightly to the steel substrate, including at welding points, preventing delamination and ensuring consistent protection.
- o **Weather and UV Resistance:** The coating maintains performance under sunlight, temperature fluctuations, and humidity.
- o **Aesthetic and Functional Benefits:** VCI coatings provide a metallic gloss and decorative appearance while maintaining structural integrity.
- o **Energy Efficiency:** Optimized cable tray designs with VCI coatings can reduce internal temperature rise, contributing to energy savings.

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## Applications

VCI bimetallic coated cable trays are particularly suitable for:

- o Coastal and marine environments where salt spray is prevalent .
- o Industrial facilities with exposure to corrosive chemicals or high humidity .
- o Outdoor installations requiring long-term durability and minimal maintenance .

## Standards and Recommendations

According to GB/T 23639-2017, VCI coatings are recommended for cable trays in coastal areas, while stainless steel or additional organic coatings may be used for indoor or specialized applications . Ladder-type trays are suggested for large spans to improve load-bearing capacity, and intelligent monitoring systems can further extend service life by tracking corrosion conditions in real time . In summary, VCI bimetallic coatings provide a cost-effective, environmentally friendly, and highly durable solution for cable tray protection, combining physical barrier properties with active corrosion inhibition to ensure long-term performance in challenging environments .

Key insights on GI Cable Trays, their types, and applications for safe and efficient cable management in industrial and

The VCI cable tray uses VCI bimetallic coating technology to effectively prevent cable corrosion and

Ventilated cable tray systems are commonly fabricated from a corrosion-resistant metal or from a metal with a corrosion-resistant

Maintenance against corrosion of cable ladder and cable tray installations is generally impractical. It is vital at the specification stage

VCI bimetallic bridge is a type of bridge with special anti-corrosion properties. It provides excellent

Discover over 100 expert answers about cable trays, covering key topics like material

The metal inorganic coating has high-efficiency, long-term protection, anti-ultraviolet aging, and is suitable for indoor and outdoor

2. What is GI cable tray? A GI cable tray is highly reliable for managing cables in industrial and commercial

## Cable trays are made with VCI bimetallic coating

The bridge body has passed through VCI bimetallic coating floor anti-corrosion treatment, which has

Cable tray is considered to be a system. It must provide continuous support for cables, and the electrical continuity of the cable tray

Under this background, the latest VCI bimetallic coating technology was born, which is especially suitable for long-term outdoor

Cable Tray systems are designed and manufactured according to National (Indian Standard, CPRI) and

The present application discloses a VCI bimetallic composite coating and a VCI bimetallic composite coating for a cable tray. The

**Galvanized Coatings** The most widely used coating for cable tray is galvanizing. It is cost-effective, protects against a wide variety of

**Cable Tray Material and Surface Treatment** Corrosion of metal is a main factor that affect cable tray lifespan. Therefore choice of

**? Next-Gen Coatings ?**: Fluorocarbon-coated steel or VCI bimetallic inorganic coatings extend salt spray resistance by

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