Anti-corrosion optical cable

Article Overview

Effective anti-corrosion strategies for optical cables include using armored coatings, anti-tracking sheaths, proper cable design, and careful installation in harsh environments.

Armor and Coating Protection

Armored optical cables benefit from copolymer-coated steel tape, which provides excellent resistance to corrosion and rodent damage while maintaining mechanical strength and lightning protection. Corrosion typically occurs only where the coating is damaged, and properly installed cables prevent corrosion migration under the jacket. Double-armored designs offer enhanced protection in areas with high rodent activity, while low-carbon steel tape provides superior tensile strength compared to copper-clad alternatives, minimizing corrosion risks in outdoor installations .

Anti-Tracking and Sheath Improvements

For ADSS (All-Dielectric Self-Supporting) cables, corrosion can result from electrical tracking caused by moisture, dirt, and electric fields. Measures to improve resistance include:

o Using anti-tracking (AT) sheaths with increased thickness (from 1.7 mm to over 2.0 mm) and smooth, tightly bonded molecular structures.
o Enhancing tensile strength and reducing sag by increasing aramid yarn content and using high-modulus fibers, which reduces the risk of electrical corrosion due to proximity to high-voltage lines .

Environmental and Installation Considerations

Selecting the right cable type and installation method is critical:

o OPGW cables integrate grounding with fiber communication, suitable for high-voltage lines.
o GYTA53 double-jacket steel tape armored cables with water-blocking tape and flooding compounds are ideal for direct burial or duct applications in chemically active or humid environments.
o Anti-corrosion ADSS cables are fully dielectric and suitable for areas with high salt concentrations or where grounding is not feasible .
o Proper hanging point selection and layout planning reduce induced electric fields and minimize electrical corrosion. Anti-vibration hardware can prevent corona discharge at cable ends .

Maintenance and Inspection

Regular inspection of cable jackets and protective sleeves is essential. Cracks, wear, or contamination can

allow water and dirt accumulation, increasing corrosion risk. Ensuring the integrity of protective layers and anti-tracking performance extends cable lifespan and maintains operational reliability .

Standards and Testing

Cables designed for harsh environments should comply with IEC 60794, IEEE 1222, UL, and RoHS standards, and undergo tests such as salt spray, UV exposure, and mechanical stress to verify corrosion resistance and long-term durability . By combining robust armor, anti-tracking sheaths, careful design, and proper installation, optical cables can achieve high resistance to corrosion, even in extreme environmental conditions.

ZTT is a leading global manufacturer of outdoor optic fiber cable systems, providing comprehensive solutions for telecommunication

Introduction of Biological Protection (Anti-Rodent, Anti-Termite,Anti-Birds) Optic Cable Zion Communication provides optical cables

1688 buyer"s encyclopedia recommends ip68 corrosion-resistant fiber optic splice closures, ideal for high-humidity, high

Explore how to select the right fiber optic cable for challenging environments including high

This technical guide will help engineers, procurement specialists, and network designers

As currents heat the optical fiber cable, "dry bands" trigger arcs (>500?), melting the sheath and exposing fiber optic

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How to solove the electrical corrosion problem of ADSS cables? Today, Let"s talk about solving this problem today. 1.

This study investigates the factors contributing to the degradation of spirally wound armored steel wires used to protect

Anti-Corrosion GYTA53 Cable: Incorporates steel tapes with PE sheath treated for UV and

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