Customization Process for New Anti-Electrical Tracking Optical Cables for Smart Cities



Overview

CN104356480A The invention discloses an anti-tracking sheathing material for ADSS (all dielectric self-supporting) optical cables. The anti-tracking sheath.

Key Takeaways

The customization of anti-electrical tracking optical cables involves selecting advanced anti-tracking materials, precise extrusion processes, and integration with smart city monitoring systems to ensure high-voltage safety and reliable data transmission.

Material Selection and Anti-

Tracking PropertiesAnti-tracking optical cables are designed to prevent electrical tracking, which occurs when conductive paths form on the cable surface under high-voltage conditions. The sheathing materials typically include polyethylene base resins, black masterbatch, polyethylene wax, PPA additives, antioxidants, and magnesium hydroxide fillers. These components are carefully proportioned to enhance weather resistance, mechanical strength, thermal stability, and environmental stress cracking resistance ( ).

Advanced materials ensure the cable can withstand voltages of 110 kV or higher while maintaining long-term performance ( ).

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Manufacturing and Extrusion Process

The production process involves several key steps: Mixing: Base materials, additives, and fillers are blended evenly in a high-mixer to ensure uniform distribution. Extrusion: The mixture is processed using twin-screw extrusion granulation, with precise temperature control across multiple zones (typically 170–220°C) and controlled pressure (0. 25–0.

3 MPa) to achieve optimal material properties. Sheathing Formation: The extruded material forms the cable sheath, providing mechanical protection, anti-tracking performance, and thermal stability. Testing: The finished sheathing is tested for tensile strength, elongation at break, melt index, and surface quality to ensure compliance with high-voltage standards ( ).

Integration with Smart City MonitoringFor smart city applications, these optical cables often serve as ADSS (All-Dielectric Self-Supporting) fiber optic cables, which are metal-free and self-supporting, allowing installation near high-voltage power lines without interference ( ). They can be integrated with Distributed Acoustic Sensing (DAS) systems, enabling continuous monitoring of urban infrastructure, including traffic, railways, subways, and electric grids ( ).

DA

S technology uses the optical fiber itself as a distributed sensor, detecting strain and vibrations over tens of kilometers, which is critical for real-time monitoring and predictive maintenance in smart cities.

Customization Considerations

When customizing these cables for specific smart city projects, key factors include: Voltage rating and environmental conditions: Ensuring the sheath material can withstand local high-voltage and weather conditions. Mechanical strength and flexibility: To support aerial installations and minimize maintenance. Compatibility with sensing technologies: Ensuring the fiber core supports DAS or other photonics-based monitoring systems.

Sustainability and durability: Using environmentally friendly materials and coatings to extend service life and reduce operational costs ( ).

Conclusion

The customization of anti-electrical tracking optical cables for smart cities is a multi-step process that combines advanced material engineering, precise manufacturing, and integration with monitoring technologies. By carefully selecting materials, controlling extrusion parameters, and aligning with smart city sensing requirements, these cables provide high-voltage safety, reliable data transmission, and long-term operational efficiency. This ensures that smart city infrastructure can be monitored and maintained effectively while minimizing risks associated with electrical tracking.

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Article Content

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The invention discloses an anti-tracking sheathing material for ADSS (all dielectric self-supporting) optical cables. The anti-tracking sheathing material comprises a polyethylene base...

ADSS Cables: Tracking Resistance Standards | PDF | Electrical ...

The document describes optical cables resistant to tracking effects that have been tested and approved according to the IEEE P1222-2011 standard.

Anti-Tracking ADSS Fiber Optic | Cable Manufacturer

Anti-tracking performance depends on space potential, tower geometry, hanging position, climate pollution level, wind/ice load, and installation method. ABPTEL

ADSS Fiber Cable Guide: Selection, Installation & Span Engineering ...

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Why ADSS Cables Fail on High-Voltage Towers:... | ABPTEL

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Customization Process for ADSS Fiber Optic Cable Anti-Certification ...

This document discusses the application and design of ADSS (All-Dielectric Self-Supporting) cable, which is an optical fiber cable that can be installed on power lines.

A Tracking-Resistance Test for ADSS-Type Optical Cables

Abstract Results are presented of an investigation of an ADSS optical cable for resistance to tracking. This cable is intended for a zonal communication line that is mounted on the supports of

KRD 6018 Anti-Tracing Polyethylene for ADSS Cables

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ADSS optical cables made of KRD 6018 and 6019 meet the relevant requirements of DL/T788-2001B class optical cables. The best extrusion performance can be achieved by using a PE screw with an

machines for fiber optical cable production

We offer complete fiber optic cable (FOC) manufacturing solutions, from fiber to finished cable, as well as individual solutions for the individual process steps of fiber optical cable production.

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gpt4_vocab_list/o200k_base_vocab_list.txt at main

Vocabulary list of GPT-4o (o200k_base) and GPT-4/GPT-3.5 (cl100k_base) tokenizers. Special tokens are excluded. - kaisugi/gpt4_vocab_list

The Role of Cables in Smart Cities: A Key Technology

In this blog, we''ll explore the critical role cables play in smart cities and how advancements in cable technology are shaping this innovative urban

Anti-Tracking Cables: Reliable High-Voltage Solutions

Our Anti-Tracking Cables are specially engineered to prevent electrical tracking, ensuring optimal performance and safety in high-voltage applications. These cables are designed with advanced

USING FIBRE OPTIC CABLES TO DELIVER INTELLIGENT

Using new or existing fibre optic infrastructure as an intelligent traffic sensor allows faster, less disruptive and more economical deployments of traffic management solutions, enabling city authorities to

Fiber Optic Sensor Cables for Advanced Monitoring | AP Sensing

Fiber optic sensor cables are the key enabler for real-time monitoring of temperature, strain, and acoustic signals across diverse and challenging environments. Depending on the application and the

Smart cities and next-gen cables

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Indian smart cities are integrating advanced and sustainable energy infrastructure. This also brings into the picture the need for high-quality power and environmental sustainability. Industry

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

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