What material is the sheath of indoor optical cables made of

Overview

Selecting the right sheathing and insulation materials for fiber optic cables is crucial to optimizing performance and longevity.

Key Takeaways

Common indoor optical cable sheathing materials include PVC, LSZH, and plenum-rated jackets, each offering different levels of fire safety and mechanical protection. Common Sheathing Materials1. Polyvinyl Chloride (PVC) PVC is a widely used, low-cost material for indoor fiber optic cables.

It provides good mechanical protection and resistance to moisture and UV exposure. However, PVC has poor flame-retardant properties and produces dense smoke when burned, making it less suitable for areas with high fire risk. 2.

Low Smoke Zero Halogen (LSZH) LSZH is increasingly popular for indoor applications due to its excellent flame-retardant properties and minimal smoke and toxic gas emissions during combustion.

LSZ

H sheaths are ideal for data centers, hospitals, and public buildings, where fire safety is critical. They also offer good mechanical protection and environmental resistance. 3.

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Plenum-

Rated Sheaths Plenum cables are designed for air-handling spaces such as ducts and ceilings. Typically made from fluoropolymers like FEP or PTFE, plenum sheaths provide superior flame resistance and low smoke generation. Building codes often require plenum-rated cables in these spaces to prevent fire hazards.

4. Armored Cables For harsh indoor environments, armored fiber optic cables include an additional layer of steel or aluminum armor. These cables can have PVC, LSZH, or plenum outer jackets and are used in industrial settings where mechanical damage is a concern.

Key Considerations

Fire Safety: LSZH and plenum materials are preferred in high-risk areas due to low smoke and halogen-free properties. Mechanical Protection: PVC and LSZH provide standard protection, while armored cables offer enhanced durability. Regulatory Compliance: Plenum-rated cables are often mandated by building codes for air-handling spaces.

Environmental Resistance: LSZH and plenum sheaths resist moisture and chemical exposure better than standard PVC.

Summary

For indoor optical fiber installations, PVC is suitable for general use, LSZH is recommended for fire-sensitive areas, and plenum-rated jackets are required in air-handling spaces. Armored options are available when additional mechanical protection is needed. Selecting the appropriate sheath material ensures fire safety, regulatory compliance, and long-term cable performance.

Article Content

Indoor optical cable outer shestor material

Polyvinyl chloride (PVC) is a commonly used outer sheath material for indoor fiber optic cables. PVC is a low-cost material that provides good mechanical protection and resistance to

PVC vs LSZH vs OFNP Jackets – Complete Selection Guide

PVC (Polyvinyl Chloride) is the most widely used and economical cable jacket material. It offers good flexibility, durability, and resistance to abrasion, making it suitable for general indoor

6 Fiber Cable Outer Sheath Materials and How To Choose?

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

PVC is the most widely used fiber optic cable outer sheath material. It has good performances, good chemical resistance and weathering resistance, low cost, low flammability, and

What Materials Are Fiber Optic Cables Made of | Angreen

Selecting the right sheathing and insulation materials for fiber optic cables is crucial to optimizing performance and longevity. Flame-retardant materials like PVC or LSZH enhance safety

18 Cable Sheath Materials Explained

The sheath material is responsible for the cable''s safeguarding, safety, and regulation. All the materials, including PVC, PTFE, LSZH, and PUR, are designed to perform best in certain

Cable Jacket Material: How to Choose

PVC (Polyvinyl Chloride) jacket is one of the most commonly used cable outer sheath materials, which has good wear resistance, corrosion resistance, and aging resistance.

Fiber Optic Cable Jackets and Fire Ratings Explained

One critical yet often overlooked component is the fiber optic cable jacket. It shields the fiber core from environmental threats and plays a major role in fire safety compliance.

How To Choose Fiber Cable Outer Sheath Materials?

Indoor Installation: The cable will be protected from harsh weather conditions, but fire safety and toxicity are key concerns. Low Smoke Zero Halogen (LSZH) materials are preferred

6 Fiber Cable Outer Sheath Materials and How To Choose?

Application Environment Indoor fibe optic cables can be sheathed with PVC, and outdoor fiber optic cables can be sheathed with PE. When flame-retardant is required, LSZH, flame-retardant

Analysis Of Optical Cable Sheath Materials: All-round

The sheath or outer sheath is the outermost protective layer in the optical cable structure, mainly made of PE sheath material and PVC sheath material, and

The FOA Reference For Fiber Optics

The fiber optic contractor should be able to work with the customer in each installation project through six stages: design, installation, testing,

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Fiber-optic cable

A fiber-optic cable, also known as an optical-fiber cable, is an assembly similar to an electrical cable but containing one or more optical fibers that are used to carry light. The optical fiber elements are

How To Choose Fiber Cable Outer Sheath Materials?

Choosing the appropriate outer sheath material for fiber optic cables is crucial for ensuring the cable''s durability, protection, and performance under specific environmental conditions.

Cable Jacket Material: How to Choose

LSZH LSZH (Low Smoke Zero Halogen) jacket is an outer sheath made of environmentally friendly materials that produces less smoke and toxic gases when exposed to fire.

A Guide to Cable Sheaths and Jacket Types

There are a wide variety of different cable sheaths and jackets which all serve a different purpose. Understanding the difference helps you make an informed decision when it comes to

Fiber Optic Cable Components & Materials: Complete

Explore the 5 key fiber optic cable components and materials used in modern networks. Learn how glass, coatings, and strength members affect

Fiber optic cable outer sheath material

Fiber optic cable with sleeve material. Select fiber optic cables of different materials according to the layout area Generally speaking, Plenum fiber optic cables are suitable for use in

An Overview Of Optical Fiber Cable Structure And

An optical fiber cable is a complex structure designed to protect fragile glass fibers that transmit digital data using light signals. This advanced cabling solution

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Contact Us

Continue your research online:

Website: https://alfa-pro.co.za
Technical inquiry: https://alfa-pro.co.za/contact.html

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

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved