JEWELBLU OPTICAL SYSTEMS

What is the outer sheath of a fiber optic patch cord made of



Overview

A fiber-optic patch cord is constructed from a core with a high, surrounded by a coating with a low refractive index, that is strengthened by and surrounded by a protective jacket. Transparency of the core permits transmission of optic signals with little loss over great distances. The coating's lower refractive index causes light to be reflected back toward the core, minimizing signal loss. The protective aramid yarns and outer jacket minimize physical damage to the core and coating.

Key Takeaways

The outer sheath of fiber optic patch cords is typically made from materials like PVC, LSZH, OFNP, HDPE, or LDPE, chosen based on fire safety, environmental exposure, and mechanical protection requirements.Common Sheath Materials



© 2026 JEWELBLU OPTICAL SYSTEMS - All rights reserved

PVC (Polyvinyl Chloride) is the most widely used and economical material for indoor fiber optic patch cords. It provides good flexibility, durability, and abrasion resistance, making it suitable for general indoor installations. However, PVC releases corrosive hydrogen chloride gas when burned, so it is restricted in enclosed or public-access spaces . LSZH (Low Smoke Zero Halogen) is designed for environments where fire safety and air quality are critical. LSZH sheaths emit minimal smoke and no halogen gases during combustion, reducing toxic exposure in case of fire. They are commonly used in public buildings, data centers, and areas with strict fire codes . OFNP (Optical Fiber Nonconductive Plenum), also known as plenum-rated cables, are engineered for installation in plenum spaces such as air-handling areas in ceilings or raised floors. These sheaths are highly fire-resistant and meet stringent safety standards for flame propagation . HDPE (High-Density Polyethylene) is primarily used for outdoor fiber optic cables. It offers excellent resistance to weather, UV radiation, and long-term environmental exposure, making it ideal for feeder and distribution cables exposed to the elements . LDPE (Low-Density Polyethylene) provides increased flexibility compared to HDPE and is sometimes used in outdoor or flexible applications, though it is less durable for harsh long-term outdoor conditions .

Function of the Outer Sheath

The outer sheath serves as the primary protective layer for the fiber optic core and buffer, shielding the cable from mechanical stress, moisture, chemicals, and environmental hazards. It also holds the internal aramid strength members in place, which provide tensile strength and prevent fiber breakage during installation or handling .

Summary

The choice of outer sheath material depends on the installation environment, fire safety requirements, and mechanical protection needs. For indoor use, PVC or LSZH is common, while OFNP is required for plenum spaces. For outdoor applications, HDPE or LDPE is preferred to withstand environmental exposure .

Article Content

Fiber-optic patch cord

A fiber-optic patch cord is constructed from a core with a high refractive index, surrounded by a coating with a low refractive index, that is strengthened by aramid yarns and surrounded by a protective jacket. Transparency of the core permits transmission of optic signals with little loss over great distances. The coating''s lower refractive index causes light to be reflected back toward the core, minimizing signal loss. The protective aramid yarns and outer jacket minimize physical damage to the core and coating.

Related Video Reference

© 2026 JEWELBLU OPTICAL SYSTEMS - All rights reserved

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Contact Us

Continue your research online:

Website: https://jewelbluimages.co.za
Technical inquiry: https://jewelbluimages.co.za/contact.html

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

© 2026 JEWELBLU OPTICAL SYSTEMS - All rights reserved