Fiber Optic Cable Softening



Overview

Home US BERT testing proves real-world cable performance by sending live data through your network and checking for errors — no technical expertise require.

Key Takeaways

Fiber optic cables can soften when their protective jacket or buffer is exposed to high temperatures, certain chemicals, or prolonged environmental stress, potentially affecting handling and installation but not necessarily the fiber core itself.

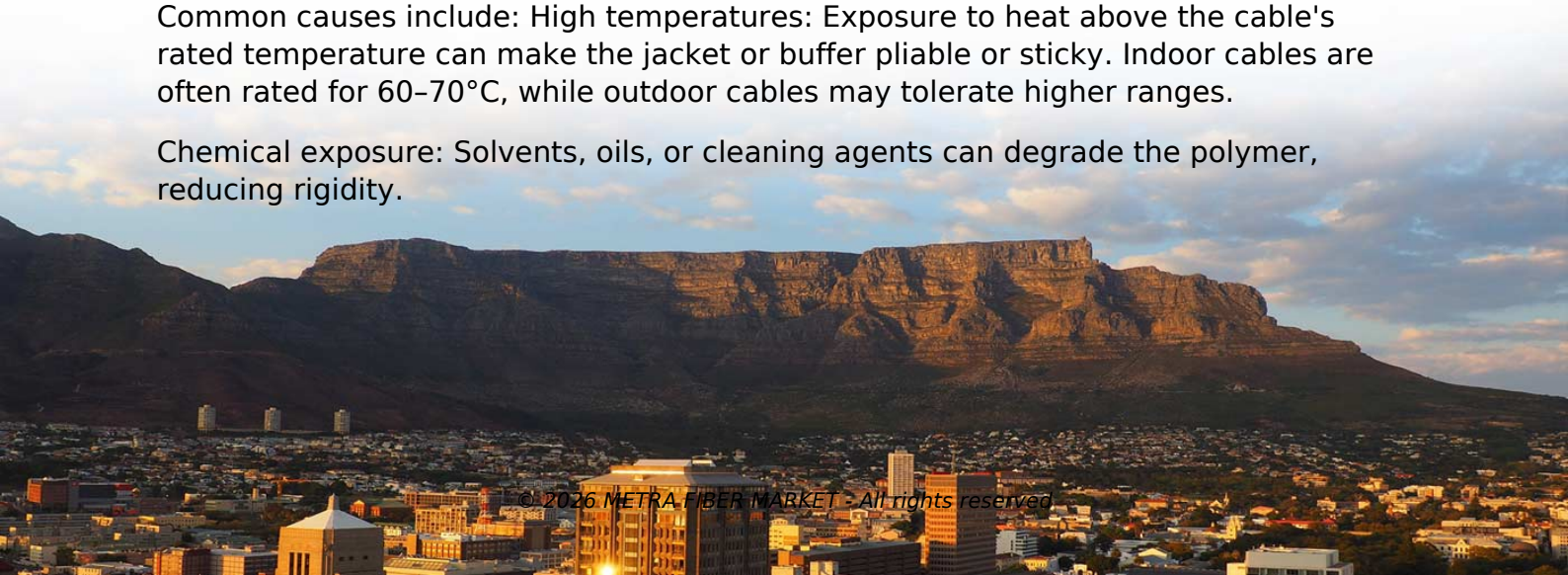
Cable Construction and Materials

Fiber optic cables consist of a core and cladding made of ultra-pure glass or plastic, surrounded by a primary buffer coating and additional protective layers such as tight buffers, strength members, and an outer jacket. The jacket and buffer are typically made of polymers like PVC, polyethylene, or LSZH materials, which provide flexibility, moisture resistance, and mechanical protection. These polymer layers are softer than the glass core and are designed to absorb stress during installation.

Causes of Softening

Softening usually occurs in the polymer layers rather than the glass fiber itself. Common causes include: High temperatures: Exposure to heat above the cable's rated temperature can make the jacket or buffer pliable or sticky. Indoor cables are often rated for 60–70°C, while outdoor cables may tolerate higher ranges.

Chemical exposure: Solvents, oils, or cleaning agents can degrade the polymer, reducing rigidity.



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Prolonged U

V or environmental stress: Sunlight, moisture, or repeated bending can gradually soften the outer layers. The glass core remains largely unaffected because it is much stronger and more heat-resistant than the polymer coatings.

Implications

Softened cables may: Be harder to handle or pull through conduits due to reduced stiffness. Increase the risk of kinking or microbending, which can cause signal attenuation if the fiber is bent too sharply. Require inspection before splicing or termination, as the softened jacket may not hold connectors securely.

Preventive Measures

Store and install cables within the manufacturer's temperature range. Avoid chemical contact with the jacket or buffer. Use proper conduit or support to prevent excessive bending or compression.

Inspect cables for softening or damage before deployment, especially in outdoor or industrial environments. In summary, fiber optic cable softening is usually a surface-level issue affecting the polymer layers, not the glass fiber itself. While it can complicate handling and installation, careful environmental control and proper installation practices can minimize risks and maintain performance.

Article Content

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The information contained in this manual should serve as a guide to proper handling, installing, testing, and for troubleshooting problems with fiber optic cables.

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