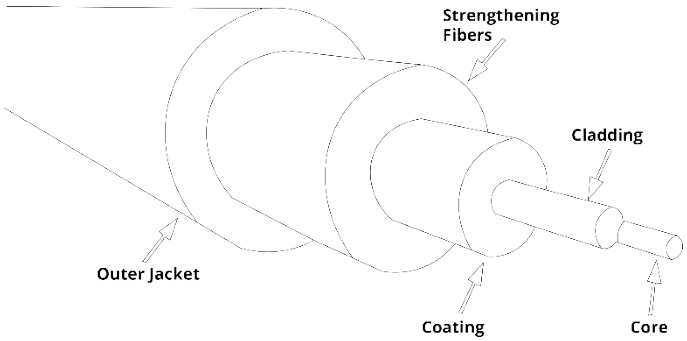
DATANET
ASSETS

# Fiber Cable Fire Ratings

A fiber optic cable is an assembly of five components; the outer jacket, strengthening fibers, coating, cladding, and core.




The first component of a fiber optic cable you will notice is the outer jacket. This component serves as the first layer of protection. This layer adds protection for conditions such as fire and moisture.
As there are different types of materials used for the outer jacket, it is important to know in which conditions the cables will be used so that you are able to choose a cable with the right material for the outer jacket. The most common material used for cables in outdoor conditions is Polyethylene (PE), while the general-purpose cables use Polyvinyl chloride (PVC).

The most common used materials and their characteristics are listed below.

| Code | Material | Benefits | Usage |
|---|---|---|---|
| PE | Polyethylene | Fire and moisture resistant; high performance under different temperatures; abrasion resistant | Outdoor Conditions |
| PVC | Polyvinylchloride | Low-cost; flexible; flame resistant | General-purpose |
| PVDF | Polyvinyl Difluoride | Highly fire-retardant | Plenum Areas |
| LSZH | Low Smoke Zero Halogen | No halogenated materials | Indoor installations |

Each fiber optic cable used in a data center must meet national standards. Examples of these standards are the National Electrical Code (NEC) for the US and the Canada Electrical Code (CEC) for Canada. The standards defined in these codes relate to the installation and use of cables. Of importance in this is the rating for fire resistance. There are ratings for general use, risers (a cable going vertical) and plenums (air handling areas). The following ratings are defined.

| Code | Description | Cable Application |
|---|---|---|
| OFNP | Optical Fiber Non-conductive Plenum Cable | Plenum |
| OFCP | Optical Fiber Conductive Plenum Cable | Plenum |
| OFNR | Optical Fiber Nonconductive Rise Cable | Riser, backbone |
| OFCR | Optical Fiber Conductive Rise Cable | Riser, backbone |
| OFNG | Optical Fiber Nonconductive General-Purpose | General purpose |
| OFCG | Optical Fiber Conductive General-Purpose | General purpose |
| OFN | Optical Fiber Nonconductive | General purpose |
| OFC | Optical Fiber Conductive | General purpose |

As you can see there are both conductive and non-conductive cables. These cables are defined as follows:

***Non-conductive cable:*** *There is no metal part on the cable, and those with conductivity are not included.*
***Conductive cable:*** *There is a conductive part of the cable, but there is no current flowing in that part*

When choosing fiber optic cables to work with we always recommend taking a good look at the conditions the cables will be used in and we strongly discourage you from using unmarked cables.