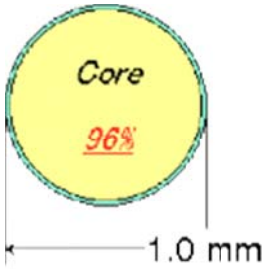
Basics of Plastic Optical Fiber (POF)

What is Plastic Optical Fiber?

Plastic Optical Fiber, (POF), typically uses PMMA (acrylic), a general-purpose resin as the core material, and fluorinated polymers for the cladding material.



In large-diameter fibers, 96 percent of the cross-section is the core that facilitates the transmission of light.

Although quartz fiber is widely used for infrastructures, POF has been called the "consumer" optical fiber. This is due to the fact that costs of POF, associated optical links, connectors, and installation costs are low. It is being focused on for the following fields in particular:

- Digital home appliance interfaces
- Home networks
- Car networks

Types of Optical Fiber

The material used for POF is typically PMMA. However, there are also many other types of optical fiber. The individual characteristics of these fibers are applied to a variety of fields.

Below is a list of the typical optical fibers mass-produced today:

- **Quartz optical fiber** -- Suited for long-distance transmissions
  - Single-mode fiber (SMF) -- Widely used for communications
  - Multi-mode fiber (MMF) -- Used for office networks
- **Glass optical fiber**
  - Multi-component glass optical fiber -- Widely used along with POF for lighting
- **Plastic optical fiber**
  - PMMA plastic optical fiber(POF) -- Consumer short-distance fiber for electronic appliances and motor vehicles
- **Other**
  - Polymer-clad fiber -- Fiber with a quartz core and plastic clad

Note: Other types of plastic optical fiber have also been developed, including fluorinated and polycarbonate.

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