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Asahi Glass Succeeds in Development of Consumer Fluororesin-based Plastic Optical Fiber that is User-friendly and Compatible with Ultrahigh-speed Communication

AGC Asahi Glass Co.,Ltd.

AGC (Asahi Glass Co., Ltd./ Head Office: Tokyo/ President & COO: Kazuhiko Ishimura), jointly with Professor Yasuhiro Koike of Keio University, has successfully developed a new fluororesin-based Plastic Optical Fiber (POF). This is the world's first optical fiber product which is compatible with high-capacity data communication at 10 Gbps and above, with high bending performance in operation, which we could never have dreamed of achieving with the existing silica glass optical fibers and POFs.

While consumers are now using USB for communication, notably with their PCs, and making communication between AV equipment, mostly using their TVs at home, we predict that there will be growing needs for high-speed data communication with the increase in sizes of data, mainly image and video data. However, there are many problems in transferring high-resolution image data including Super Hi-Vision and 3D video with a copper cable, which is commonly used at present, and the market is expecting a shift to optical fiber, which is compatible with communication at a higher speed.

The existing silica optical fibers, however, have some problems including the following. They are sensitive to being bent while transmitting data and they break if bent excessively, they require precise positioning for splicing with a laser, and they need to be wrapped in a reinforcing material such as tensile strength fiber to reinforce the strength of the bare fiber, which requires a high manufacturing cost and complicated operations in the terminal treatment process of cables.

However, we have successfully overcome these problems with the new AGC-developed product by capitalizing on the characteristics of plastic and making improvements in the following aspects:

1) We succeeded in confining light within the core of optical fibers more powerfully by making the area around the core take on a double-clad structure, which allowed us to develop an optical fiber that was unbreakable, a characteristic which is specific to plastic, and was also able to function even when knotted or bent.

2) Since we can change the core diameter of optical fibers arbitrarily by taking advantage of the ease of volume production specific to plastic, we can connect the product using inexpensive simple connectors.

3) Since the product has a tight-code structure, in which the cable sheath is directly and firmly attached to the rim of the fibers, we can reduce the number of parts of connectors, making it easy to perform terminal treatment operations.

As a result of the above improvements, users without technical expertise will be able to handle the product.

This AGC-developed new POF is fully compatible with next-generation AV data communication due to its high-speed characteristics that outperform silica glass optical fibers. We achieved such characteristics by using a fluororesin-based material with a smaller dispersion than silica glass.

The new POF was developed using AGC's core technologies in fluorine chemistry, and with this product, we utilize the technologies and facilities that the Company has cultivated in the Lucina business.

We will conduct a sample shipment of the product starting in March 2009 and aim to make it the mainstay of optical digital communication as a product that everybody in the family, from children to the elderly, can use safely.

◎For further information regarding this issue, please contact Toshihiro Ueda, GM of Corporate Communications and Investor Relations, AGC Asahi Glass Co., Ltd.
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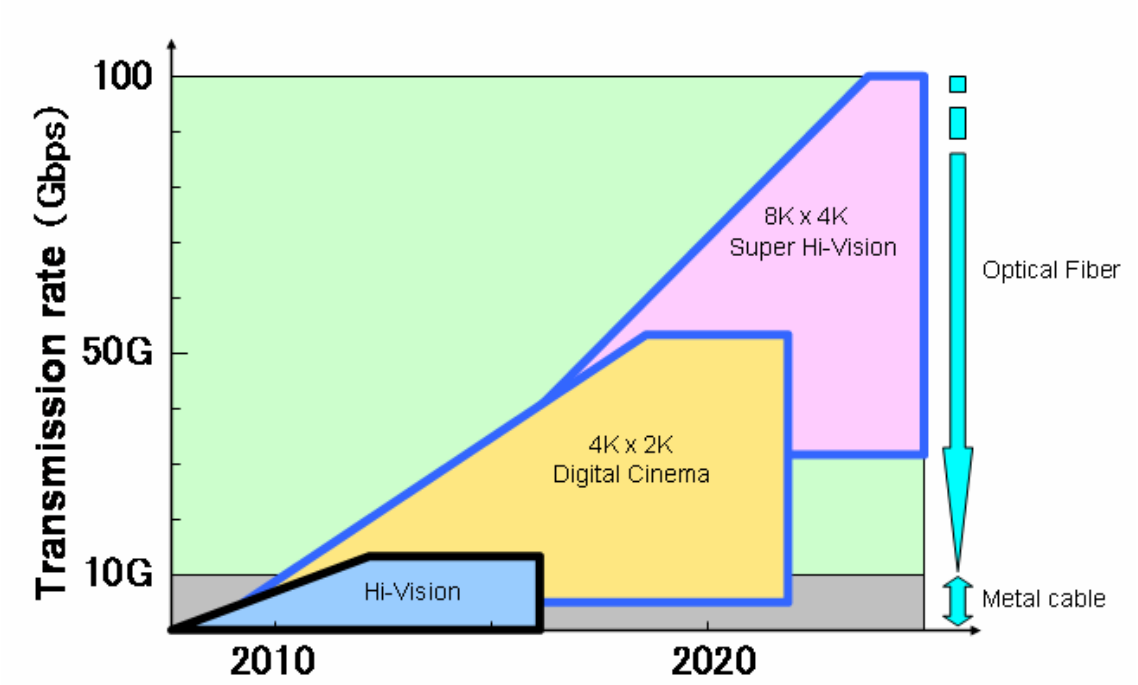
Reference

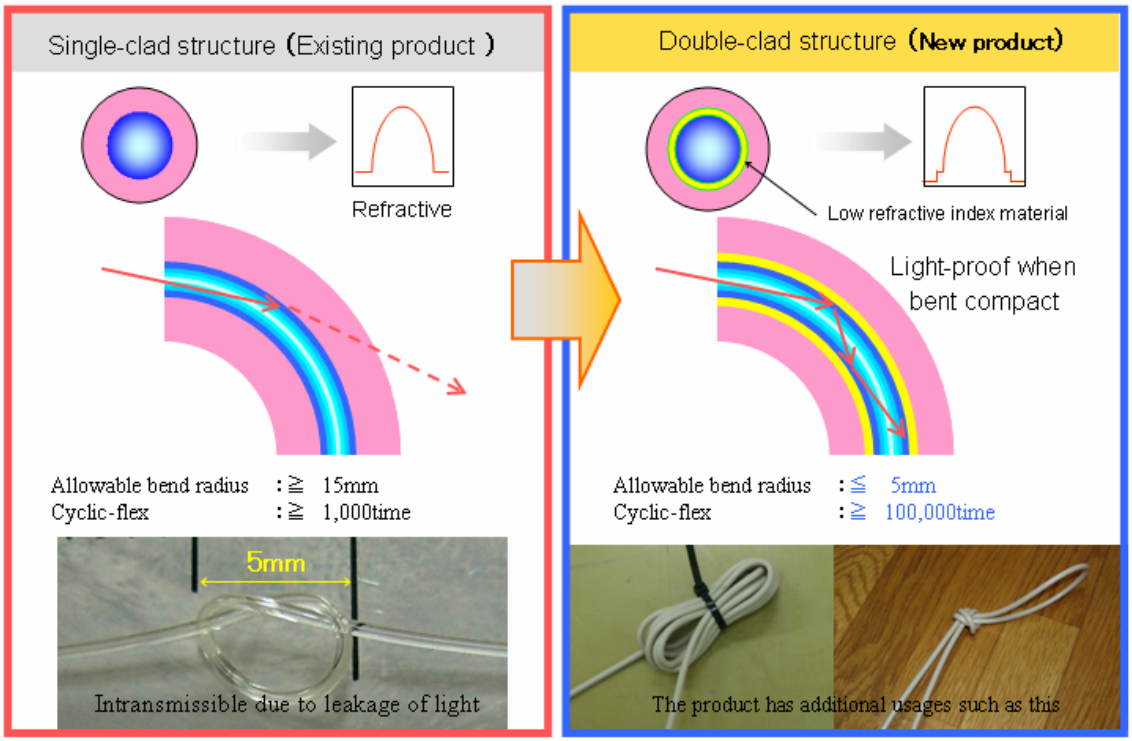
1. Planning of new high-resolution displays

-Full-spec. High-vision
Display with 2,000 × 1,000 pixels
-Digital Cinema
Display with 4,000 × 2,000 pixels
-Super Hi-Vision
Display with 8,000 × 4,000 pixels



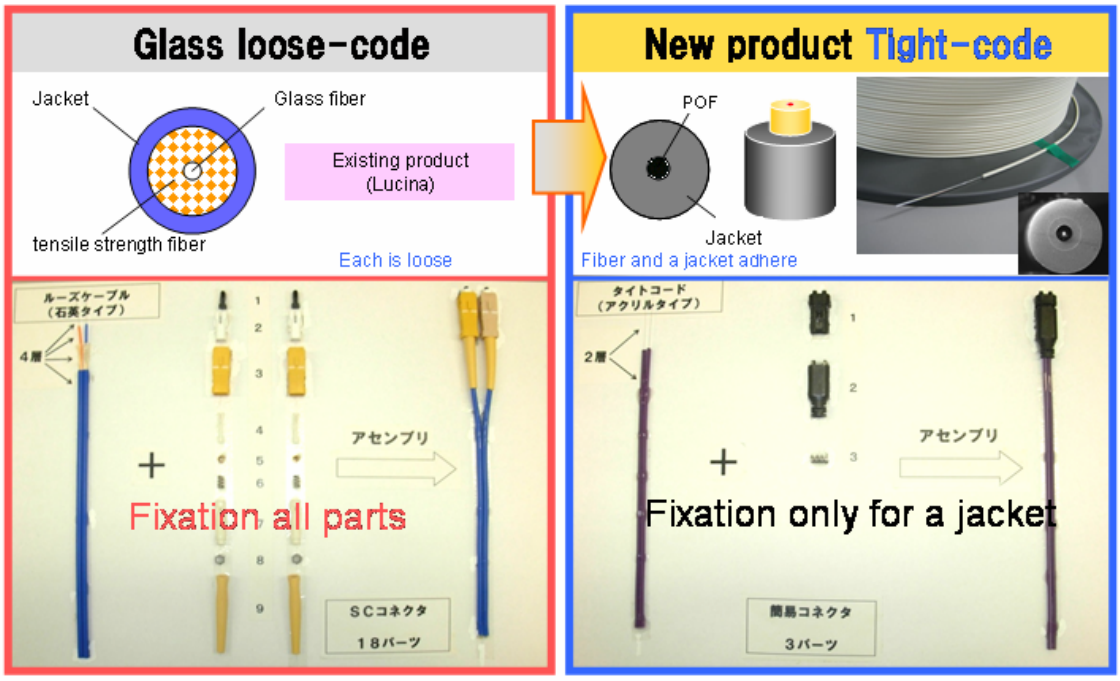
2.Double-clad structure

Decreasing a leak of the light by doing structure of clad with the different materials of the refractive index double.



3.Tight-code structure

Structure to cover in a direct mantle around fiber.



Can reduce connector parts / assembling time by tight