

Uncleaved Implantable Fiber Optic Cannula Cleaving Procedure



Fiber Cleaving

Thorlabs' uncleaved cannula must be cleaved, or precision cut, before use to ensure proper light propagation out of the fiber tip. We recommend the procedure shown below for cleaving the fiber end.

Required Materials

- Uncleaved Fiber Optic Cannula
- S90R Fiber Scribe
- BFG1 Bare Fiber Gripper
- KW32 Kimwipes™ Lint-Free Wipes
- Isopropyl Alcohol
- Thorlabs' JEL10 Eye Loupe or Microscope (Optional)

Cleaving Procedure

1. Clean the fiber end of the cannula using a lint-free wipe and isopropyl alcohol. Do not use acetone, as this will damage the TECS cladding on the exposed fiber.
2. Measure the desired length of fiber from the end of the ferrule. Mark this length on the fiber with a marker.
3. Place the cannula on a hard surface and secure the fiber end with a finger or tape, as shown in Figure 1 below.



Figure 1: Scribing the Fiber with the S90R Fiber Scribe

Cleaving Procedure (Cont.)

4. Hold the cleaving tool perpendicular to the fiber and gently score the fiber as shown in Figure 2 to the right. Do not apply excessive pressure. The fiber should not break off at this point.

This step is critical in obtaining a good cleave. If the scribe is made too hard, the fiber will break instead of cleaving. If the scribe is too light, the fiber will not cleave.

5. Hold the cannula in one hand, and grip the fiber end with a bare fiber gripper in the other end as shown in Figure 2. Pull the fiber straight back until the fiber cleaves as shown in Figure 3.

6. If the fiber does not break with a decent amount of tension, repeat steps 4-5 above, applying slightly more pressure when scoring. Inspect the cleave using an eye loupe or microscope.

A good cleave will be flat across the fiber and perpendicular to the optic axis. There should be no 'tag' (i.e., protrusion) from the edge of the fiber. The region where the initial scribe was made may be visible. It should be less than 5% of the core diameter. Be patient as this process takes a little practice. Please be aware that it will be more difficult to achieve a high-quality cleave in large-core-diameter fibers compared to thinner fibers. A view of a properly cleaved fiber end as seen through a Thorlabs' JEL10 eye loupe is shown in Figure 4 to the right.

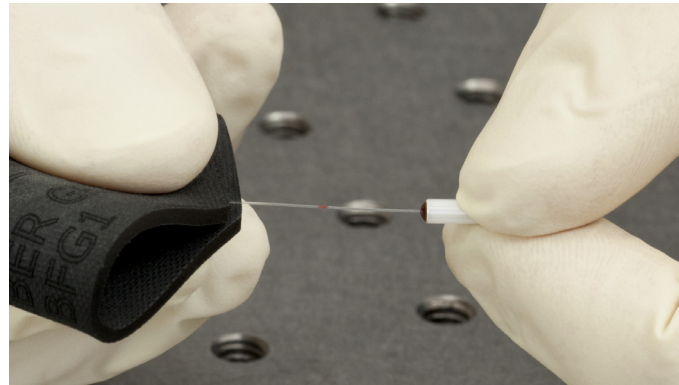


Figure 2: Pulling the Fiber with the BFG1 Bare Fiber Gripper

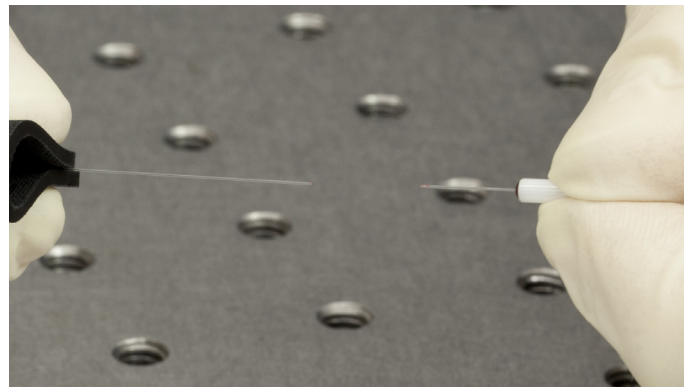


Figure 3: Cleaved Fiber after Pulling

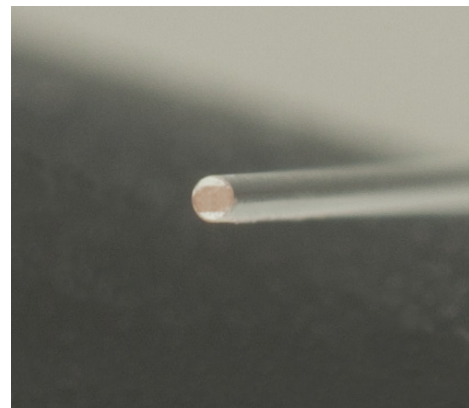


Figure 4: Cleaved Fiber End, as Viewed Through the JEL10 Eye Loupe