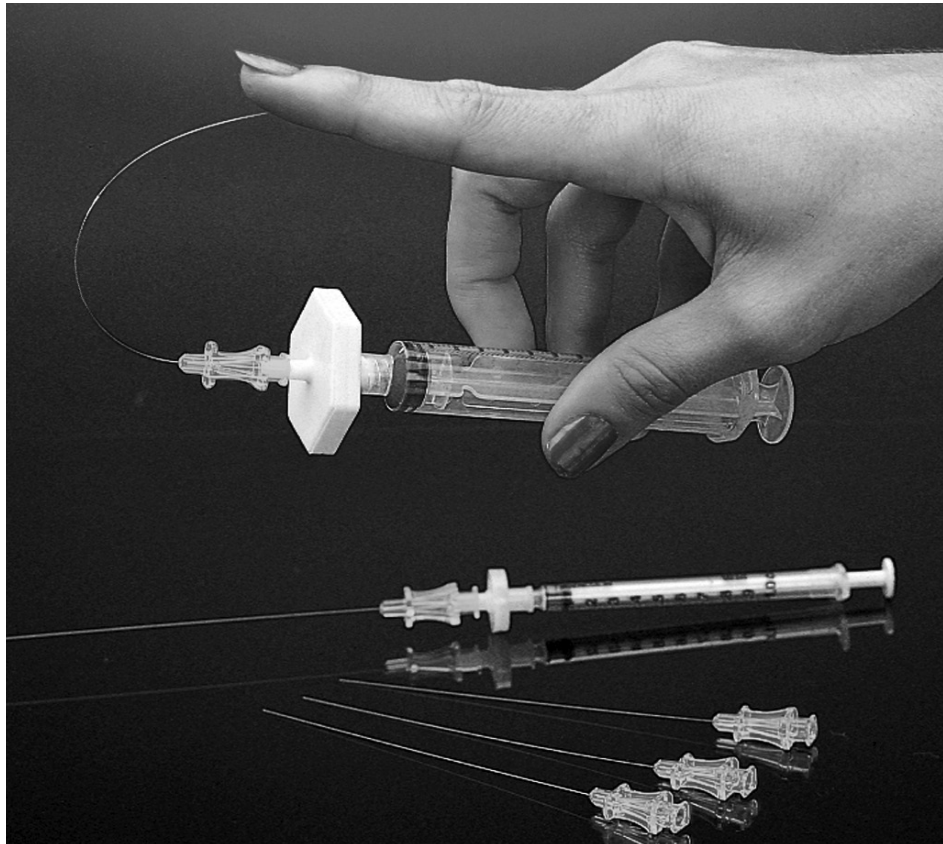




# MicroFil™

## Nonmetallic syringe needle for filling micropipettes



a metal needle is filled with a solution containing EDTA or EGTA, the solution can become very acidic within several minutes because EDTA chelates metal ions from the needle and therefore release protons into the solution.

Clogging of the micropipette tip by particles present in the injecting solution is one of the major causes of failure in microinjection experiments. Proper filling methods can, however, significantly reduce clogging.

WPI's MicroFil™ fills micropipettes easily and reliably. Its long and fine tip allows you to start the filling very close to the pipette tip,

U.S. PATENT 5,294,325

To properly fill a micropipette can be a challenging task. One current method involves the use of a long, stainless steel hypodermic needle.

Unfortunately, the KCl solution used in the filling process can corrode and plug the stainless steel needle in a few days if the needle is not thoroughly cleaned after each use. For pipettes used in the study of ion channels (e.g., patch pipettes), filling with a metallic needle may introduce metal ions into the filling solution. Furthermore, when

eliminating both air bubble formation and clogging due to the washing down of dust particles.

The MicroFil needle is constructed from a combination of plastic and fused silica – no metal components are used. The MicroFil needle can be stored for days with the filling solution inside without clogging. The MicroFil's tip elasticity is sturdy and very flexible though not unbreakable. Since it is more flexible than stainless steel needles, moderate bending will not block or damage the

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MicroFil needle. The combination of plastic and fused silica in the MicroFil tip is sturdier than simple plastic tips, allowing easy and repeated insertions into micro-pipettes. MicroFil's luer fitting allows easy coupling to syringes and syringe filters.

### **MicroFil MF34G**

The tip of model MF34G is 70 mm long, 0.164 mm OD, 0.1 mm ID (34 gauge 2.8-in. long). The fine, long tip will fit into most micropipettes intended for use in intracellular and extracellular recording as well as microinjection applications.

### **MicroFil MF28G**

The tip of model MF28G is 100 mm long, 0.35 mm OD, 0.250 mm ID (28 gauge, 3.9-in. long). MF28G is sturdier than MF34G but still flexible enough to allow a 360° bend. The longer tip of the MF28G can be effectively used for filling fine and long tubes such as those employed in WPI's Kwik-Tip and MERE 2 microelectrodes, or to reach and fill corners that are difficult to reach by other means. Both MF34G and MF28G are equipped with luer syringe fittings for quick and easy connection to your filling syringe.

**MF34G-5** 70mm tip, 0.164 mm OD, 0.1 mm ID (34 gauge), pkg of 5

**MF28G-5** 100mm tip, 0.35 mm OD, 0.25 mm ID (28 gauge), pkg of 5

*Custom lengths also available. Consult factory for details.*

### **Chemical Information**

MicroFil's tubing is made of fused silica (quartz) coated with polyimide. The Luer fitting is medical grade polypropylene and the adhesive has passed medical VI class test. These materials are resistant to most acids, bases and organic solvents. To avoid dust contamination we recommend pre-rinsing the MicroFil with distilled water. Also, it is good practice to discard the first few microliters of filling solution before using the device. MicroFil, as shipped, is non-sterile. It can be chemically sterilized or auto-claved. However, repeated autoclaving may weaken the adhesive bond to the Luer fitting.

### **Maintenance**

If MicroFil is filled with pure salt solution, leaving it in the syringe overnight will not usually cause the tip to block. However, if MicroFil is used for high viscosity material, flushing after use is recommended.

### **Cutting**

MicroFil can be cut to a desired length by rolling a razor blade on it. However, this may leave a small crack or a small barb on the tip. To get a flat cut, score the coating of the tubing with a ceramic cleaving stone or a diamond cutter and pull directly apart, making sure not to pull at an angle.

## **World Precision Instruments, Inc.**

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