

Technical Bulletin G0150 – MIM Fused Silica to FEP Tubing Conversion



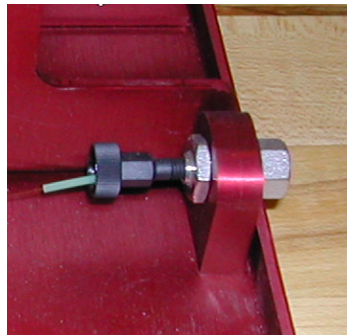
Teflon fluorinated ethylene propylene (FEP) tubing is now commercially available in 1/32" outer diameter (O.D.) and inner diameter (I.D.) from 75 μm to 230 μm . This tubing is much easier to work with, does not pose any surface adsorption concerns, or crack and produce dangerous particulates like fused silica. 75 μm I.D. tubing is recommended for the sample fluidic pathway, as longitudinal diffusion does not occur.

For more details on working with FEP tubing, please see 'Technical bulletin G0310 - FEP Tubing Fluidic Tutorial' in the Knowledge Base.

Fused Silica Plumbed Manual Injection Module (MIM)

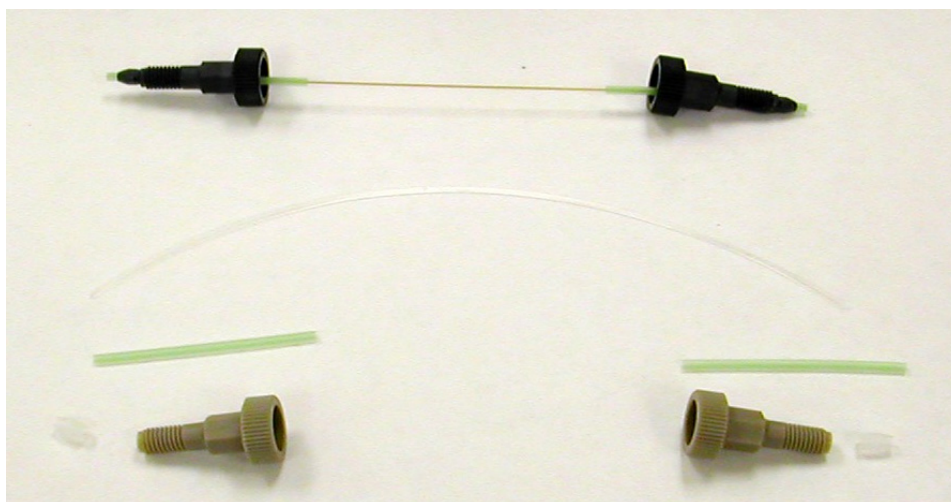


Begin by tilting the MIM back and locating the two screws that hold the lower bracket/union in place (screws are circled in figure to the left). Use a Philips-head screwdriver to take the two screws out. This will release the bracket that holds the union to give you easier access during plumbing.



Once the bracket is free, disconnect the fused silica link between the unions.

Old Fused
Silica link

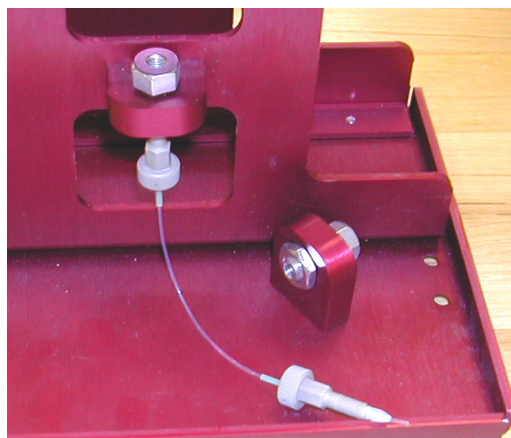


New FEP
Components

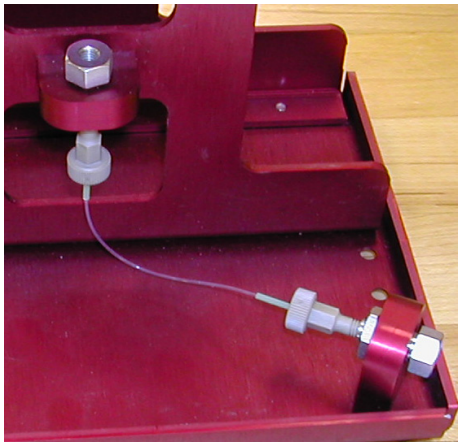
Assemble: Two tan nut & white ferrules F-334N
Two large inner diameter green sleeves F-247
15 cm FEP 75 µm i.d. 1/32" o.d. tubing 1683



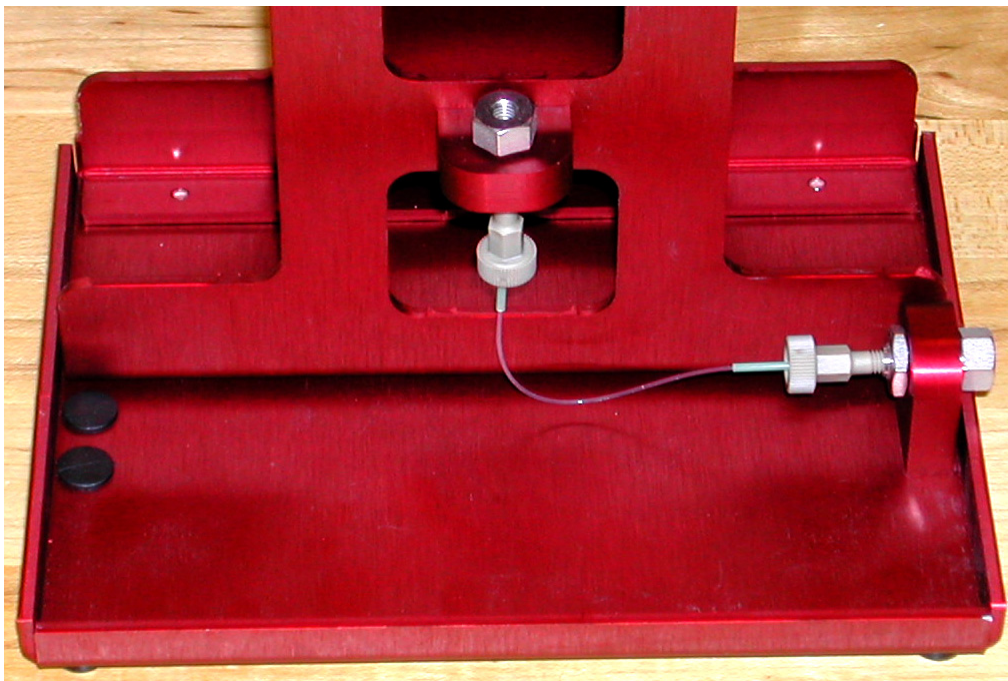
Begin by placing the tubing through the green sleeves. Place the sleeved tubing through the tan nut and white ferrule as shown above. Connect either side of the link to the underside of the injection port on the MIM.



Before connecting, ensure that the tubing and sleeve are protruding from the nut and ferrule. This is done so the tubing and sleeve are pushed back into place by the union to guarantee a zero dead volume connection. As you connect the tubing into the port, be sure to brush your fingers along the tubing and sleeve to make sure they are flush against the through-hole inside the union as you tighten the nut and ferrule. Once this fitting is tight, connect the other side of the link to the second union on the loose bracket using the same technique.



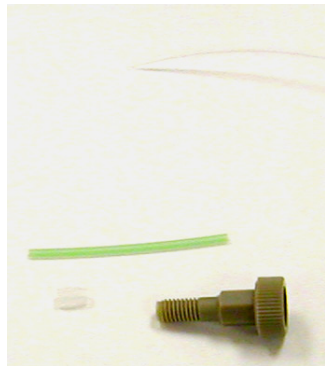
Once the tubing is secure in both fittings, tilt the MIM back and reattach the two screws to the loose bracket holding the second union.



This completes the internal link. You can stop here, however, if you were experiencing problems with fused silica, it is recommended that you convert the leg between the MIM and the filter too.

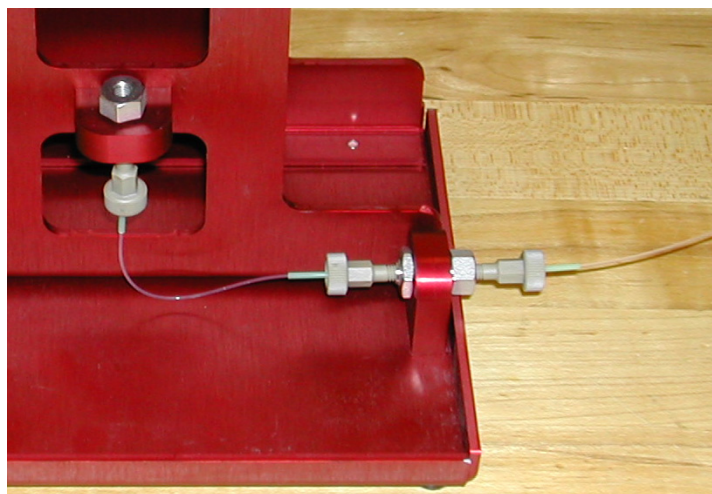
(See below for further details)

To continue the FEP conversion, assemble:



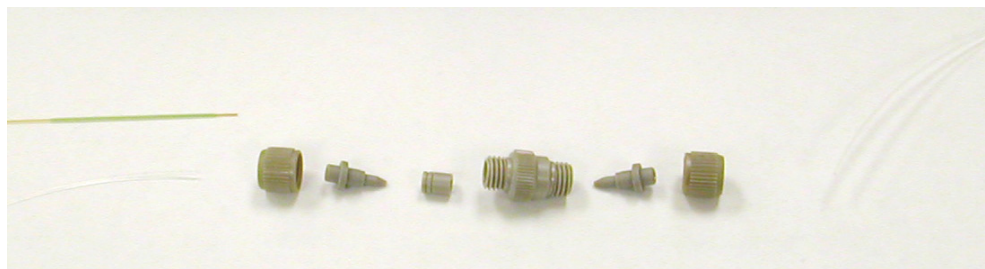
One tan nut & white ferrules	F-334N
One large inner diameter green sleeve	F-247
~1 meter FEP 75 μ m i.d. 1/32" o.d. tubing	1683

The tubing will connect the MIM to your filter. If you plan on using the same solvent push volume, measure your old length of capillary and cut an identical length of FEP tubing.



Place the tubing through the green sleeve. Place the sleeved tubing through the tan nut and white ferrule and connect this link to the outside of the second bulkhead union using the same zero dead volume technique as described above.

It is highly recommended that the tubing and fitting be flushed with solvent to remove any particulates or machining debris before connecting to the filter or the CapNMR probe.

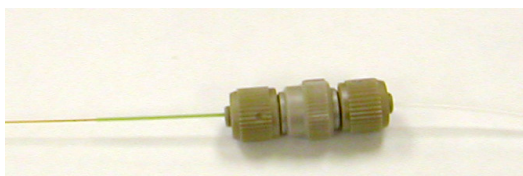


The other end of the transfer tubing should be connected to an inline filter to protect the probe.

Shown above is the disassembled M-542 filter that can accommodate fused silica or FEP tubing.



In order to connect to an FEP probe, place the FEP tubing through the nut and ferrule and assemble the filter using zero dead volume techniques.



If you have a fused silica probe, first ensure the capillary tip has a decent tip, then place the fused silica through a 1/32" o.d. green sleeve (F-376) and assemble the filter using zero dead volume techniques.