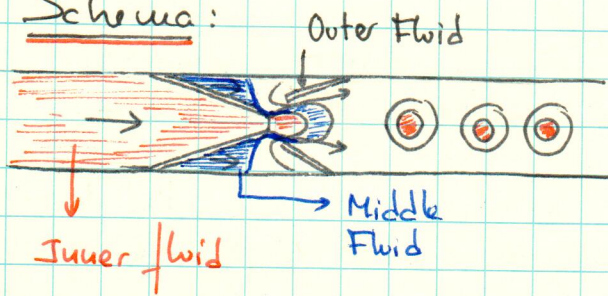
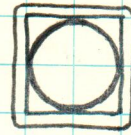


DOUBLE EMULSION DEVICES

* Schema:



* Capillary tubes:



- Square capillary tube
1mm inner diameter

~~Cylindrical capillary~~

- Cylindrical capillary tube
1mm external diameter



That makes easy align

- World Precision Instruments (WPI)

- Glass 1 BBL
- NO FIL 0.59
- 1.0 mm / 0.75 mm: outer and inner diameters
- 6 inches (152.4 mm): length
- 500 (quantity)

PART NO.: TW100-6 (#66)

{ O.D. (Outside diameter)
 { I.D. (Inside diameter)

- Fiber Optic Center Inc.

- Vitrocom Hollow Square
- Inner diameter: 1.00 mm
- Wall thickness (Borosilicate Glass): 0.300 mm
- 22 pieces per vial
- Length: 100 mm

PART NO.: 8100-100 (#30.75)

* Epoxy:

* Glass slides



a) (5 Minute Epoxy) \Rightarrow It's not resistant to chloroform!

b) RTV Fluorosilicone Adhesive from Silicone technology \Rightarrow It's resistant to organic solvents!



* Luer stub adapter:

Luer stub adapter PIC 100 Catalog # 63019-841
 (Gojo 30)

\uparrow
VWR

Cylindrical capillaries

Square capillaries

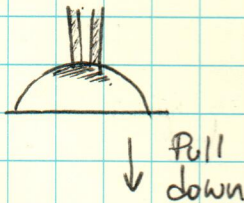
The square capillary tube must be shifted to one side because the device is not symmetric (the collection tube ends out of the glass slide)

P-97 Micropipette Puller from Sutter Instrument Company

The P-97 pulls pipettes from all glasses (including aluminosilicates, borosilicates, etc.) except quartz.

- PULL: this parameter controls the force of the hard pull the higher the pull the smaller the pipette tip diameter and the longer the taper (it's necessary to change 10 units to see an effect)
- VELOCITY: velocity of the glass carriage system. Useful values are from 10 to 150.
- TIME: controls the length time the cooling gas is active.
- DELAY: controls the delay time between when the heat turns off and when the hard pull is activated. Increasing the delay results with decreased taper length and increased tip diameter.

Microforge



- Not to heat above 50!
- Replace the drop of glass frequently (once the color has changed, it gets darker with use)

How to use it:

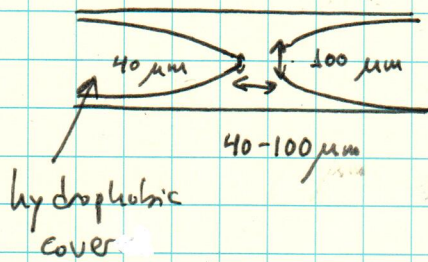
- 1) bring the capillary to the focus (by moving the objective)
- 2) scroll it up into focus plane
- 3) bring the glass to the focus (by moving the drop)
- 4) scroll the tip down into the melted glass drop.
- 5) Pull down the glass drop once it is solid.

Making tips by hydrophobic

- Dip the tip into octadecyltrimethoxysilane for a few seconds
- Dry the tip with air
- This procedure is essential in water/oil/water emulsions.

Fluka 25 mL / technical > 90% (GC)

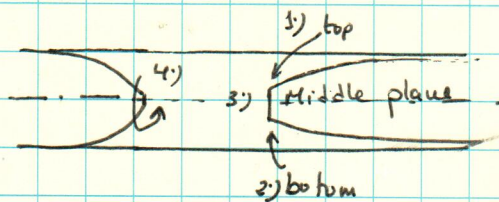
Diameters and separation length:



← It's very important that the hydrophobic capillary tube does not touch the collection tube, undesirable wetting of the oil phase in the collection tube can happen.

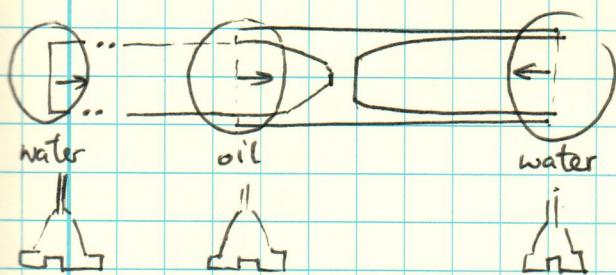
Vertical alignment:

- 1) Focus the top of the collection tube
- 2) Focus the bottom of the collection tube
- 3) Note how much the adjustment knobs has been turned and turn half of this value
- 4) Rotate the injection tube until it is focused in this plane.



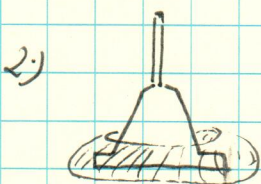
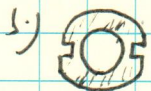
When everything is finished fix it with an epoxy.

Fixing with an epoxy

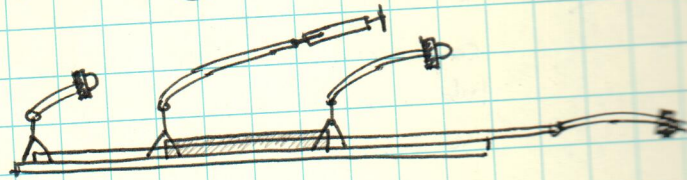


- 1) Cut and fix the adapters for injection at the beginning of the injection tube and the ends of the square capillary. Cut

- 2) Put a small quantity of epoxy to fix the adapter. 2) When the adhesive is dry add enough epoxy to recover completely the adapters and close the holes. In that case, it is necessary to wait until the epoxy is very viscous!!! (mix until the adhesive becomes hot)



Fill the capillary tube with water
(Removing bubbles)



1) Inject water until all channels are filled

2) Close all the peak tubing with clips and open the one with bubbles. Remove the air bubble by inclining the device and injecting water, and then close the tubing.

3) Repeat the same process with all the injection tubes and when all the air bubbles are removed, keep the device closed with the clips.

II