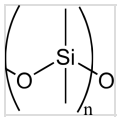


# PDMS Fabrication

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481b Laboratory

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ABSTRACT

This protocol details how to make a small piece of polydimethylsiloxane (PDMS)

PROTOCOL STATUS

**Working**

We use this protocol in our group and it is working

GUIDELINES

Lab coat and gloves must be worn at all times

MATERIALS TEXT

Materials

- Delicate Task wipes (Kimwipes®)
- 100 µL pipette and tips
- 10 µL pipette and tips
- 1 mL syringe
- 2 mL tube
- Petri dish lid (35 mm)
- Dessicator in fume hood
- Hot plate
- Aluminum foil
- Blade

Reagents

- Tridecafluoro-1,1,2,2-tetrahydrooctyl trichlorosilane
- PDMS curing agent (silicone elastomer curing agent)
- PDMS polymer (silicone elastomer base)
- 70% ethanol solution

## Prepare surface

1 Wipe the inside of the petri dish lid with 70% ethanol solution using a Kimwipe® to rid the surface of debris.

2 Place petri dish lid(s) and a 10 cm × 10 cm piece of foil in the dessicator, in the fume hood.

3 Add 2 µl Tridecafluoro-1,1,2,2-tetrahydrooctyl trichlorosilane to the piece of aluminum foil.

SAFETY INFORMATION

Chemical is highly corrosive, do not inhale or get on skin.

4 Dessicate under vacuum for 00:15:00 to vaporize reagent.

Press down on the lid as you apply vacuum. Once vacuum is achieved the lid should be able to be lifted.

Mix polymer

5 Add 100 µl PDMS curing agent and 900 µl PDMS polymer to 2 mL tube.

6 Mix the solution with an inoculation loop until there are small bubbles throughout the solution. This will take approximately 00:05:00 .

Degas polymer

7 Pour the mixed PDMS into petri dish, and try to get all of the polymer out of the tube using a pipette tip or inoculation loop. Evenly spread the polymer in the petri dish by tilting.

8 Dessicate under vacuum for 00:30:00 .

Cure polymer

9 Place petri dish on hot plate at 120 °C for 00:10:00 covered in aluminum foil.

Harvest polymer

10 Carefully peel PDMS from petridish.

11 Using a blade, cut out a piece about 1 cm × 1 cm and set on glass microscope slide. This will be your PDMS surface for water contact angle analysis.