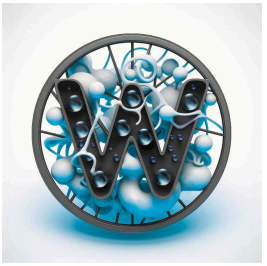
Oct 15, 2024

Preparation of Sylgard® 184 PDMS



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We use this protocol and it's working

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Abstract

This protocol outlines the main steps, materials, equipment, and safety methods for the preparation of Polydimethylsiloxane (PDMS) on silicon wafers (or similar). It is intended for all users, visitors, and service providers of the laboratories of the Institute of Biological and Medical Engineering (IIBM).

Guidelines

Usar guantes de nitrilo
Antiparras protectoras para los ojos
Delantal de laboratorio

Materials

Materiales

SLYGARD 184 **Biosearch Technologies**

Wafer with chip
Cup
Petri dish
Scalpel
Fork for mixing the mixture
#10 scalpel blade

Equipos

Drying oven
Vacuum generator located in Laboratory No. 2 ID EQ_184
Balance ID: EQ_179

Safety warnings

Todas los insumos que toquen PDMS, tales como, recipientes, agitadores y papeles deben ser eliminadas en el basurero rojo de sustancias peligrosas

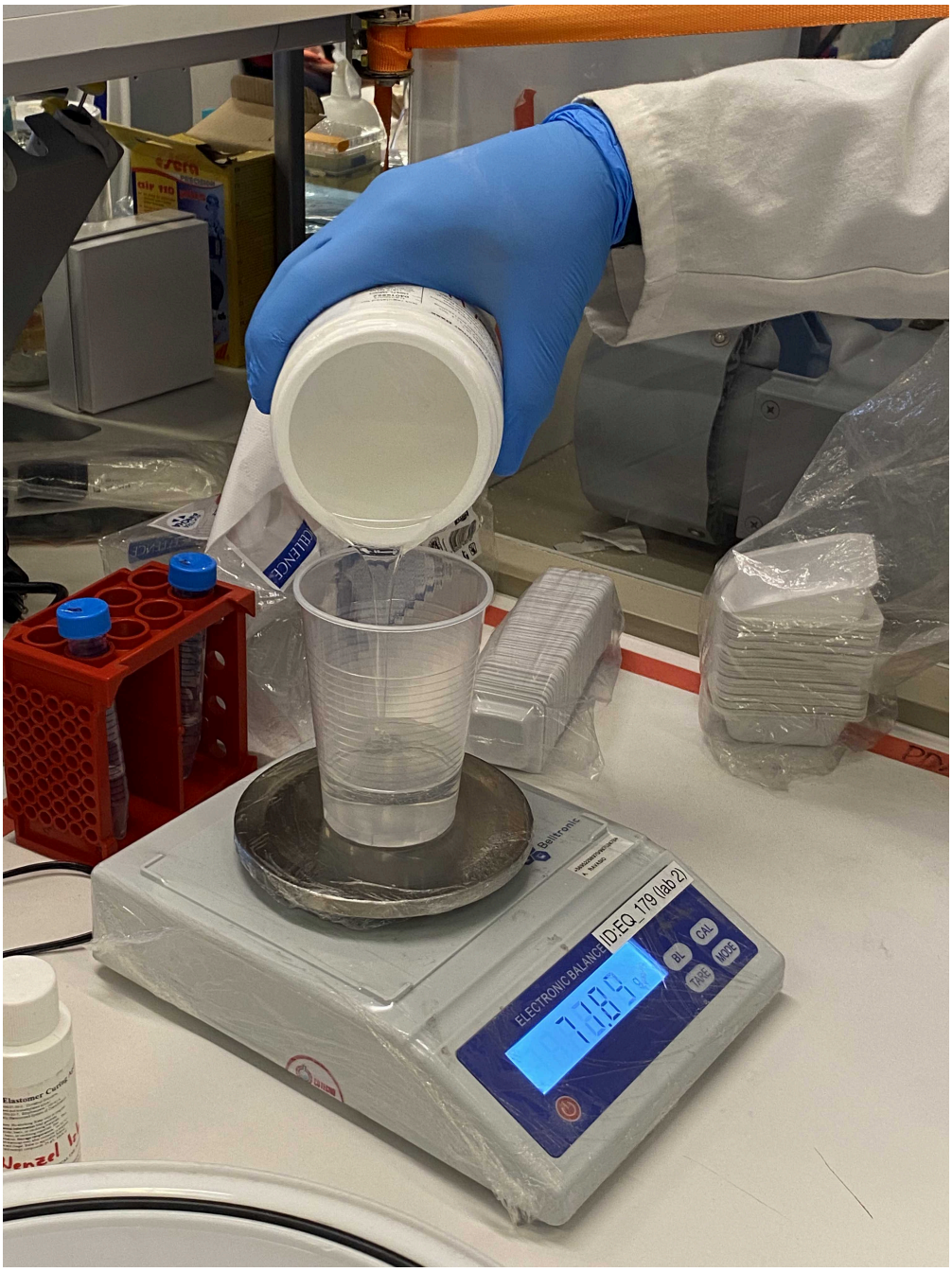
Before start

El PDMS debe realizarse en el laboratorio 2 en la zona delimitada para trabajar con sustancias peligrosas

1 Place a weighing dish or plastic cup on the balance, press TARE, and prepare the required amount of Sylgard® 184 PDMS by pouring the necessary quantities of base and curing agent in a 10:1 ratio (for example, 5 g of base + 0.5 g of curing agent).

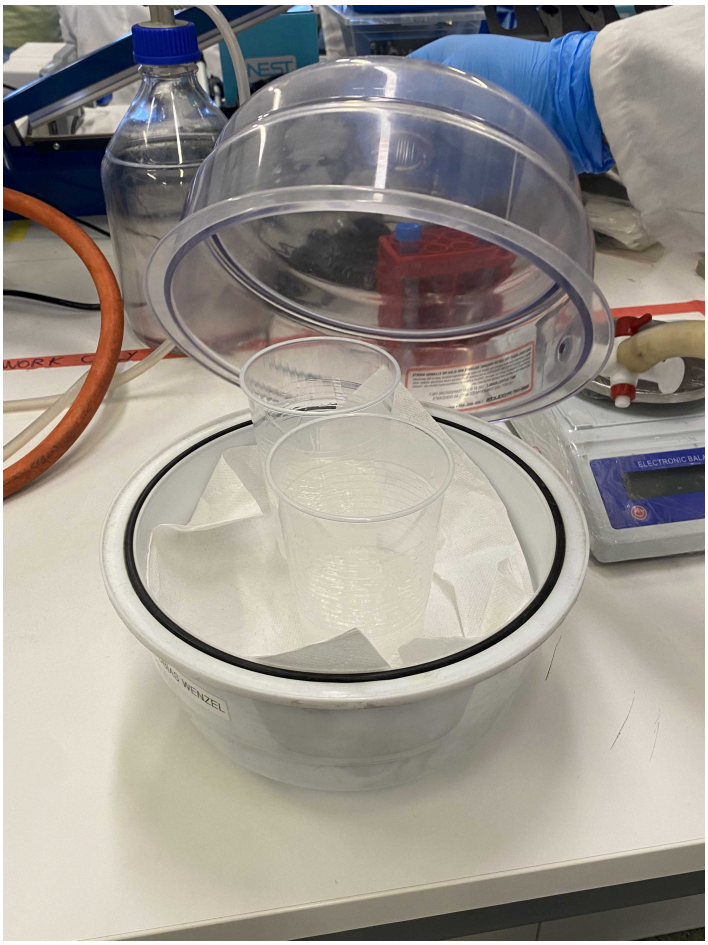
2 Mix both components thoroughly with a plastic fork until the compounds are fully homogenized (transparent).

2.1



3 After mixing the compounds, bubbles may form, so the PDMS should be degassed by placing it in a vacuum chamber located in Laboratory No. 2.

3.1



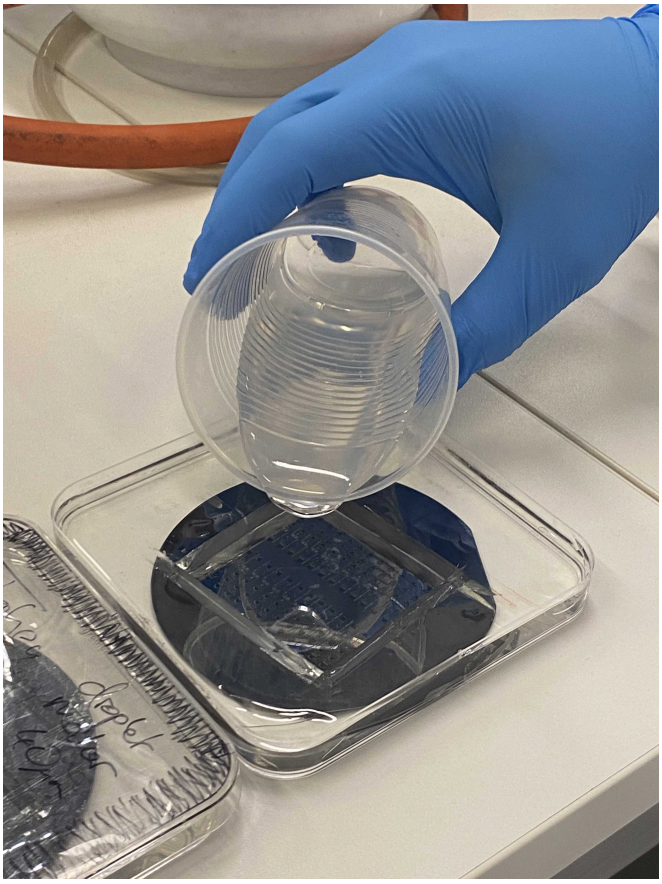
4 Place the container with PDMS inside a vacuum chamber, close the valve, turn on the vacuum pump, and allow it to degas until all the bubbles disappear.

5 Slowly open the vacuum chamber valve to let air in and release the negative pressure.

6 Pour the mixture onto the silicon wafer (or another container/mold) that will be used. Keep the silicon wafer inside its container and avoid spilling PDMS near the edge of the wafer. Ensure no PDMS remains stuck inside the container.

The wafer with the chip should never be handled directly, not even with gloves, as it can easily get dirty or scratched. Always handle it inside its case.

6.1



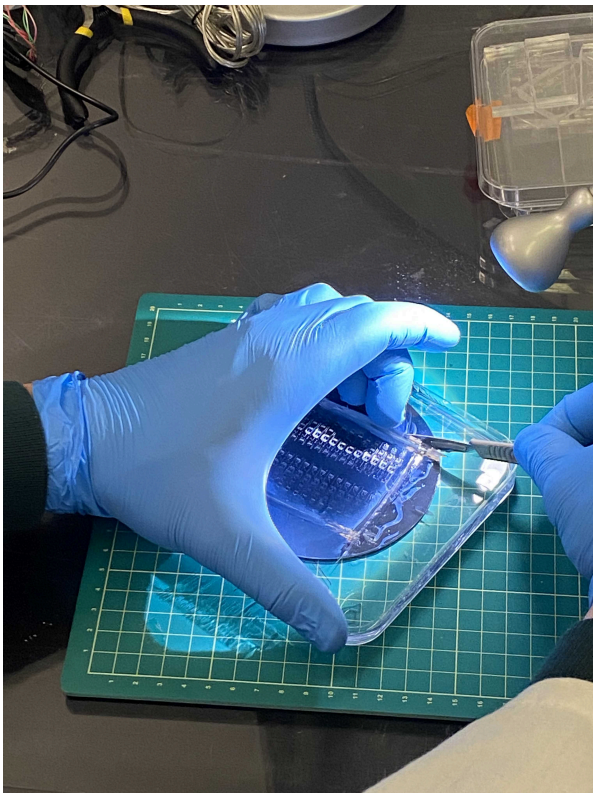
7 Place the wafer, still inside its case with the lid on, into the drying oven at 80 °C for 00:45:00 . 45m

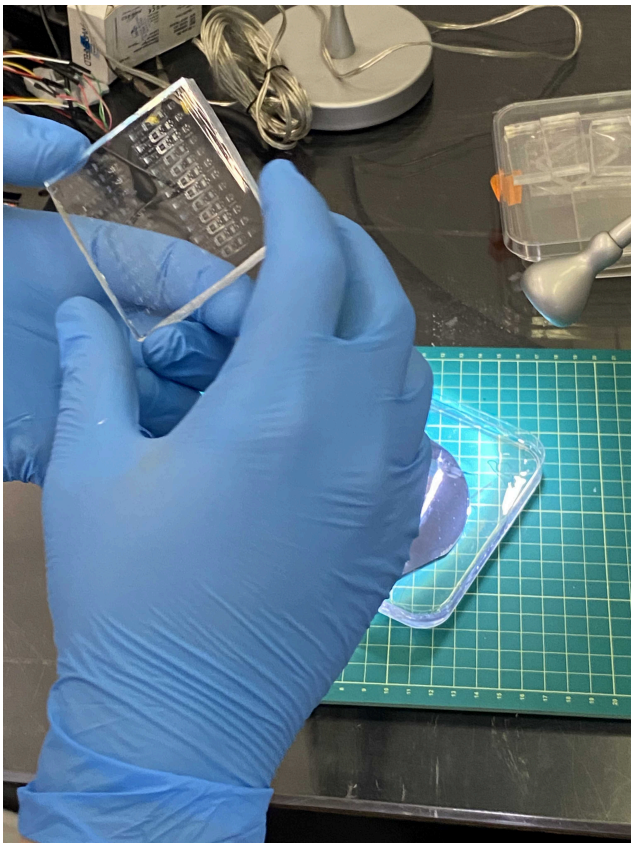
Ensure that the container is properly leveled to guarantee a uniform thickness of the PDMS.

8 Allow the wafer and the PDMS to cool in a clean environment with the case lid on.

9 When the PDMS is cold (the next day), it should be carefully cut along the defined surface to avoid damaging or scratching the wafer. Using a scalpel with a #10 blade, gently lift the PDMS with tweezers to detach it from the wafer and the plate.

9.1





10 Now the PDMS can be mounted on a microscope slide, well plate, or Petri dish.