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# PDMS-PDMS Bonding Protocol - Anatech

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## Keywords

PDMS, Bonding, Anatech

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**Critical factors:**

- Set Power to 30W, Time to 15s, and O2 Flow Rate (MFC) to 50sccm for bonding PDMS to PDMS
- Wait 20 minutes before testing bond

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## Materials

- PDMS/PDMS Curing Agent
- Glass Microscope Slides

## Equipment

- Anatech Barrel Etcher
- Spinner

## Process Parameters

- Power: 30 W
- Time: 15 seconds
- $O_2$ Flow Rate (MFC): 50 sccm

## Protocol

1. Load samples atop the stand with surface to be etched facing upwards.
2. Close the plasma chamber.
3. Start the vacuum to start the process.
4. Once the recipe has run and the chamber has vented, remove the samples.
5. Place the PDMS in conformal contact with the PDMS spun glass slide.
6. Apply gentle but uniform pressure for 10s
7. Allow the sample to incubate for at least 20 minutes
    a. Note: If more than one device was bonded, do not leave them in contact with one another at least for a few hours as partial plasma activation could have occurred on the other surfaces of the PDMS or glass.

**Tested Parameter Results**

| Power (W) | Time (s) | $O_2$ Flow Rate - MFC (sccm) | Peel Test |
|---|---|---|---|
| 15 | 15 | 50 | Fail |
| 15 | 15 | 99 | Fail |
| 30 | 15 | 25 | Fail |
| 30 | 5 | 50 | Pass |
| 30 | 15 | 50 | Pass |
| 30 | 30 | 50 | Pass |
| 60 | 15 | 50 | Pass |
| 120 | 15 | 50 | Pass |