



11-9-2015

PDMS-Glass Bonding Protocol - Anatech

Justin Wen
University of Pennsylvania

Follow this and additional works at: https://repository.upenn.edu/scn_protocols

Wen, Justin, "PDMS-Glass Bonding Protocol - Anatech", *Protocols and Reports*. Paper 2.
https://repository.upenn.edu/scn_protocols/2

This paper is posted at ScholarlyCommons. https://repository.upenn.edu/scn_protocols/2
For more information, please contact repository@pobox.upenn.edu.

PDMS-Glass Bonding Protocol - Anatech

Keywords

Bonding, PDMS, Glass, Anatech

Creative Commons License



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

PDMS-Glass Bonding Report – Anatech

Updated on 11/09/2015

Critical Factors

- Set Power to 30W, Time to 15s, and O2 Flow Rate (MFC) to 50sccm for bonding PDMS to glass
- Ensure the cleanliness of the glass slide before bonding

Table of Contents

1. Materials
2. Equipment
3. Process Parameters
4. Protocol
5. Tested Parameter Results

Materials

- PDMS/PDMS Curing Agent
- Glass Microscope Slides

Equipment

- Anatech Barrel Etcher

Process Parameters

- Power: 30 W
- Time: 15 seconds
- O₂ 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 glass slide.
6. Apply gentle but uniform pressure to PDMS for 10s
7. Incubate PDMS on glass at RT for 20 min
 - 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)	Duration (s)	O ₂ Flow Rate –MFC (sccm)	Pressure (mTorr)	Depth	Peel Test
30	5	50	660 to 700	Deep	Pass
30	10	50	640 to 700	Deep	Pass
30	15	50	610 to 690	Deep	Pass
30	30	50	600 to 700	Deep	Pass
30	45	50	610 to 700	Deep	Pass
40	5	50	630 to 690	Deep	Pass
40	10	50	640 to 700	Deep	Pass
40	15	50	610 to 700	Deep	Pass
40	15	50	620 to 690	Shallow	Pass
60	15	50	630 to 710	Deep	Pass
120	15	50	710 to 915	Deep	Pass