

PLASMATHERM WAF'R/BATCH 74 ETCH -- MANUAL MODE OPERATING PROCEDURE

Rev. 12/27/2001

Notes

1. Pressing **STOP** on the **CONTROL** keyboard may silence the audible alarm.
2. If the **STOP** switch on the Control keyboard is pressed while a process is running, the process will be put in **hold**. Pressing **RUN** on the Control keyboard can restart it.
3. If the **STOP** switch on the Control keyboard is pressed and held for 5 seconds the process running or in **hold** will be permanently aborted.



Venting and Loading Wafers

1. Ensure no other process is running in either chamber.
2. Ensure the chamber select key is turned to **CHAMBER 2** (right-hand chamber).



3. Turn the **MODE** key switch to **MANUAL OPERATION**.
4. On the **FUNCTION** keypad, press **MANUAL** and, while holding it, press **VENT**. The system will pump to base pressure for a short time and then vent to atmosphere.
5. When the **ATMOSPHERE** LED on the pressure status panel is lit, you may open the chamber and load your wafers.



6. On the **FUNCTION** keypad, press and hold **MANUAL** while pressing **PUMP DOWN**. The system will pump to base pressure for a short time and then vent to atmosphere.
7. The system will now be under vacuum.

Setting Etch Parameters

The etch gas channels and maximum gas flows are as follows:

#	Gas	Maximum flow
GAS 1	O ₂	200 sccm
GAS 2	NF ₃	200 sccm
GAS 3	CHF ₃	200 sccm
GAS 4	SF ₆	[Conversion: 0.335 X sccm = setting]

A. SET GASES

1. Enable the gas flows for the etch process separately. Press **MANUAL** on the function keypad and while holding it; press the desired gas switch (i.e. GAS 1/ SETPT, or GAS 2/SETPT, etc.).
2. Press the **SET** switch and while holding it press the desired gas switch. The **DATA** keypad will light up.
3. On the **DATA** keypad, key the percentage of the gas flow for the setpoint and press **ENTER**.

Example: setting CHF₃ to 50 sccm (25% of flow)

Press **MANUAL / GAS 3**
 Press **SET / GAS 3**
 Key **25.0** on DATA
 Press **STEP/ENTER**

4. Repeat this step for each gas to be enabled.



B. SET PRESSURE

5. Press **MANUAL** on function keypad and **PRES SET PT**.
6. Press **SET** and **PRESS SET PT**. The **DATA** keypad key will light up.
7. Enter the pressure setpoint in torr on the **DATA** keypad. Press **STEP/ENTER** on the **DATA** keypad to enter it.
8. Allow pressure to stabilize.

C. SET RF POWER

9. Press **MANUAL** on the function keypad and while holding it press **RF1/SET PT** switch.
10. Press **SET** and press **RF1/SETPT**. Enter the desired power level on the **DATA** keypad - as a percent on the maximum power. Then press **STEP/ENTER** on the **DATA** keypad.

Example: setting RF to 100W (20% of power)
Press **MANUAL** and **RF1 / SET PT**
Press **SET** and **RF1 / SET PT**
Press **STEP / ENTER**

TIME THE ETCH

D. STOP ETCH

11. Press **MANUAL** and **RF1/SET PT** to disable the RF power.
12. Press **MANUAL** and **GAS #**, for each gas enabled to disable the gas flows. Release the **Manual** switch after each entry.
13. Press **MANUAL** and **PRES/SET PT**, to disable the pressure setpoint. Allow the system to reach base pressure for a few minutes.
14. Purge the chamber by pressing **MANUAL** and **PURGE**. This introduces nitrogen to the chamber. After several minutes, stop nitrogen by pressing **MANUAL** and **PURGE**.
15. Go to **Venting and Unloading Wafers** section.

Vent and Unloading Wafers

1. Press **MANUAL** on the **FUNCTION** keypad while pressing **VENT**.
2. When the **ATMOSPHERE** LED on the pressure status panel is lit, you may open the chamber and unload your wafers.
3. Close the chamber lid.
4. Hold **MANUAL** on the **FUNCTION** keypad while pressing **PUMP DOWN**. Hold the lid down slightly with your hand. The chamber will be pumped to base pressure (<.007 on the pressure status display).
5. Leave the chamber select key switch in the **CHAMBER 2** position.



REMEMBER TO RECORD IN LOG BOOK

You are to record the follow information in the logbook:

1. Name and date.
2. Time in.
3. Parameters of etch such as power, gas flows, pressure.
4. Time out.