

PM1 ICP Etch Operational Procedure

1. Reference **Figure 1** on **page 2** for arrows within this procedure.
2. Vent the Load Lock via the "Vent Lock" icon if necessary. ←
3. **Load your sample(s)** and a pre-clean substrate into **Cassette 1** (the cassette on the left). Ensure the major flat is parallel to and facing the back of the cassette. The system will automatically map the cassettes when you close the door.
4. Pump the Load Lock via the "Pump Lock" icon. The ICON will change to "Pump Lock" when the "Vent Lock" process is complete. ←
5. Edit the process variables for your etch step. **Edit etch step.**
6. From the "Lot Operations" screen: ←
 - a. Select **Cassette 1**. ←
 - b. Enter a "Lot Name". ←
 - c. From the "Material ID/ Port Location" list select the substrate that you wish to process. ←
 - d. From the "Flow Name" list select the flow that you wish to run (i.e. "InP 200C Standard"). ←
 - e. Select "Execute Lot". ←
 - f. The selected wafer will now be removed from the "Material ID/ Port Location" menu list. ←
 - g. Once the chuck temperature has reached process set-point the system will begin running. If the actual temperature is different than your required process temperature it may take a while to attain your desired temperature so please be patient.
7. When the system has completed processing it will prompt you with an audible indicator and the Signal Tower will flash yellow.
8. Repeat steps 5-7 until all of your substrates have finished processing.
9. Vent the Load Lock, via the "Vent Lock" icon. ←
10. Remove your substrates and select "Pump Lock". ←

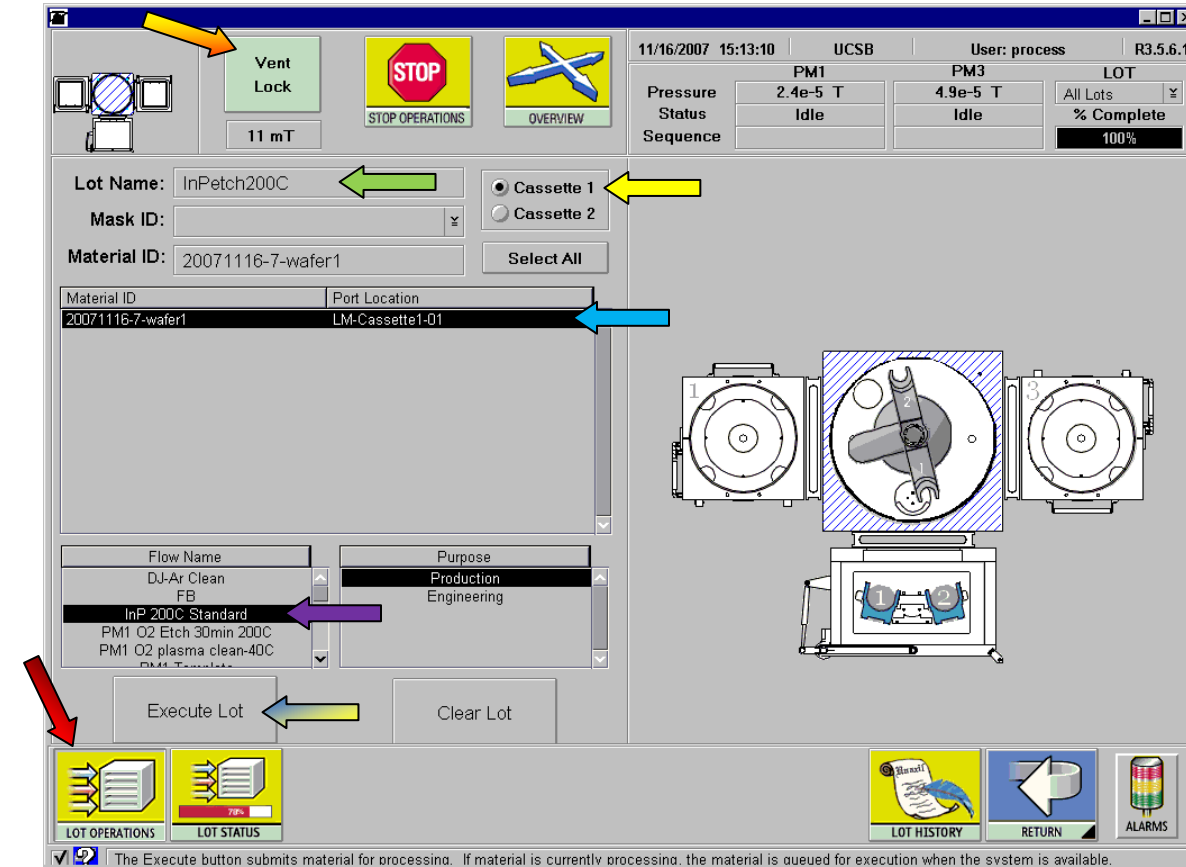


Figure 1

Load Sample(s):

- Remove cassette #1 (the left cassette).
- Place your sample(s) onto a carrier wafer at the center.
- Hold the carrier wafer at the edge opposite the major flat using wafer tweezers, and insert the carrier wafer **to the back of the slot** (otherwise, the carrier wafer will be broken). The major flat should be parallel to the back of the cassette (the side without the pins).
- Ensure the wafer isn't "cross slotted".
- Place the cassette back on the elevator (the pin side of the cassette should be facing the TM chamber).
- Close the door gently and click on the "Pump Lock" icon. ←

Edit Etch Step:

- From main screen, click on "EDITORS" icon.
- Focus on PM1 and select "Edit Step".
- Select the appropriate "Category Filter" i.e. "InP Process".
- Select the appropriate step from the "Directory of Process Steps" i.e. "InP Etch".
- Edit the "Setpoint" field for the corresponding step variable(s) you want to change.
- Select "SAVE STEP".

The screenshot shows the 'Edit Process Step for PM1' window. At the top, there are status indicators for PM1, PM3, and LOT. Below that, a 'Category Filter' is set to 'InP Process'. The 'Directory of Process Steps' list on the left has 'InP Etch' selected. The main table shows various process variables with their setpoints and units. The 'Setpoint' for 'processTime' is highlighted. At the bottom, there are buttons for 'DELETE STEP(S)' and 'SAVE STEP'.








Name	Setpoint	Units	Max	Min	Error+	Error-	Warn+	Warn-
processTime	160.0	s	3.1536e7	0.0	0.0	0.0	0.0	0.0
pressure	7.0	mtorr			0.0	0.0	0.0	0.0
Temperature1TemperatureSetpt	40.0	degC	220.0	0.0	0.0	0.0	0.0	0.0
Temperature2TemperatureSetpt	40.0	degC	220.0	0.0	0.0	0.0	0.0	0.0
Temperature3TemperatureSetpt	40.0	degC	100.0	0.0	0.0	0.0	0.0	0.0
Temperature4TemperatureSetpt	180.0	degC	200.0	0.0	0.0	0.0	0.0	0.0
HeliumCoolerPressureSetpoint	5000.0	mTorr	10000.0	0.0	0.0	0.0	0.0	0.0
RF1ControlMode	Power							
RF1DCBiasSetpoint	0.0	volts	1000.0	0.0	0.0	0.0	0.0	0.0
RF1ForwardPowerSetpoint	250.0	watts	600.0	0.0	0.0	0.0	0.0	0.0
RF1ReflectedPowerSetpoint	0.0	watts	100.0	0.0	0.0	0.0	0.0	0.0
RF2ControlMode	Power							
RF2DCBiasSetpoint	0.0	volts	2000.0	0.0	0.0	0.0	0.0	0.0
RF2ForwardPowerSetpoint	900.0	watts	1000.0	0.0	0.0	0.0	0.0	0.0
RF2ReflectedPowerSetpoint	0.0	watts	100.0	0.0	0.0	0.0	0.0	0.0
AMN1ControlMode	Auto							
AMN1TuneSetpoint	0.0	percent	100.0	0.0	0.0	0.0	0.0	0.0
AMN1LoadSetpoint	0.0	percent	100.0	0.0	0.0	0.0	0.0	0.0
AMN2ControlMode	Auto							

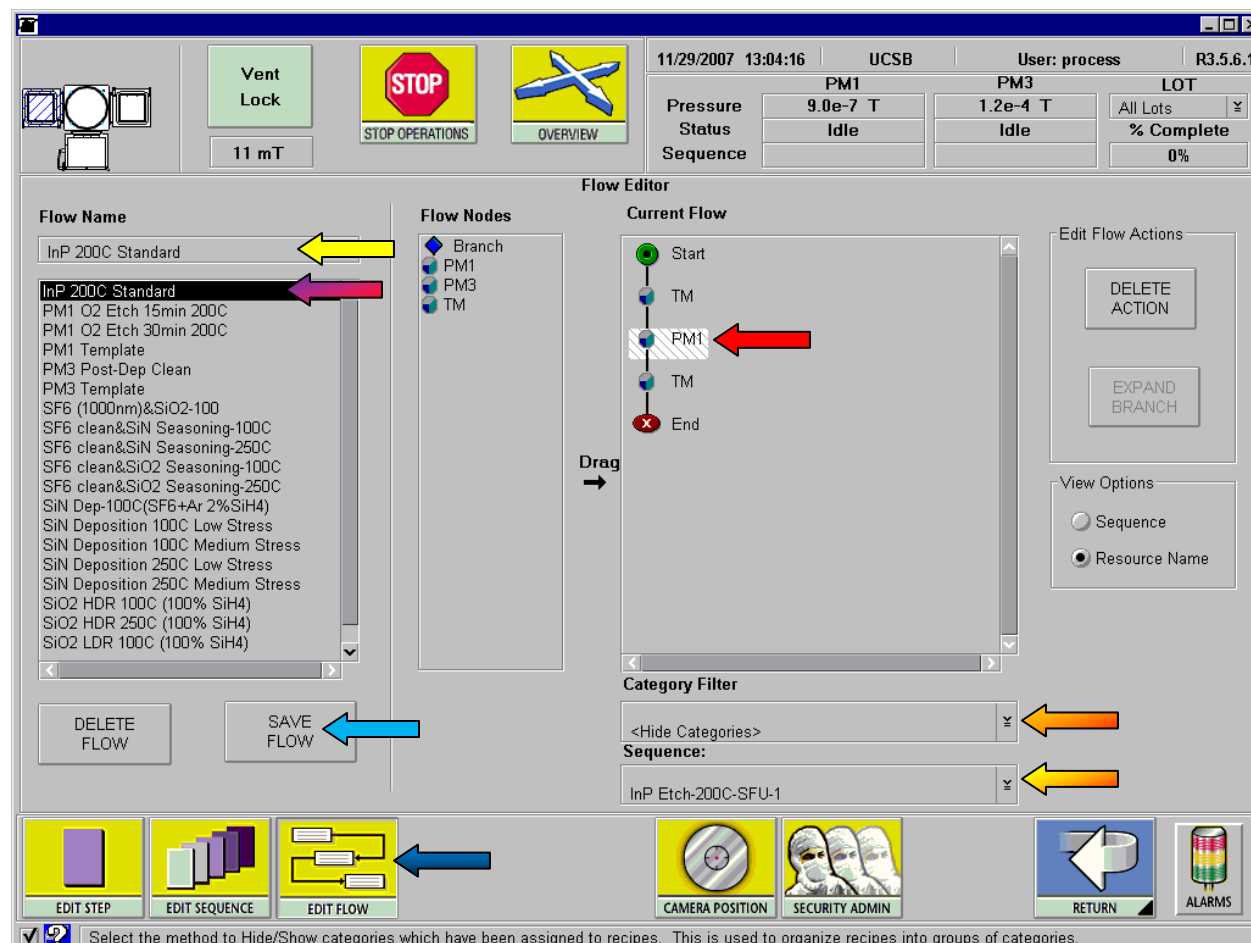
Edit A Sequence:

- From main screen, click on "EDITORS" icon.
- Set the Focus to PM1.
- Select the "EDIT SEQUENCE" icon.
- Select the appropriate "Sequence Category Filter (SCF)".
- Select Sequence from the "Sequence Directory for PM1".
- Select the appropriate "Process Step Category Filter".
- From the "Process Steps Available" select the process step to be added.
- Select a step from the "Sequence Contents" list that is either directly above or below the space you want to insert your new process step.
- To insert the step above the selected click the "INSERT" button.
- To insert the step below the selected click the "ADD" button.
- To delete a step from the sequence click the "Remove" button.
- Change the name in the "SCF" field if needed. "Save" the sequence.

The screenshot shows the 'Sequence Editor' window. At the top, there are status indicators for PM1, PM3, and LOT. Below that, a 'Sequence Category Filter' is set to 'InP Process'. The 'Sequence Directory for PM1' list on the left has 'InP Etch-200C-SFU-1' selected. The main area shows 'Process Steps Available' and 'Sequence Contents'. The 'INSERT' and 'ADD' buttons are visible. At the bottom, there are buttons for 'DELETE' and 'SAVE'.

Edit A Flow:

- Navigate to the "Editors" screen.
- Select the "Edit Flow" icon. 
- Select a flow from the "Flow Name" list. 
- Click on "PM1" in the "Current Flow" field. 
- Select your Sequence "Category Filter". 
- Select your Sequence from the "Sequence" list. 
- If needed you can save the flow to a unique name by changing the name in the "Flow Name" field before saving. 
- "Save" the flow. 



11/29/2007 13:04:16 UCSB User: process R3.5.6.1

	PM1	PM3	LOT
Pressure	9.0e-7 T	1.2e-4 T	All Lots
Status	Idle	Idle	% Complete
Sequence			0%

Flow Editor

Flow Name

- InP 200C Standard
- InP 200C Standard**
- PM1 O2 Etch 15min 200C
- PM1 O2 Etch 30min 200C
- PM1 Template
- PM3 Post-Dep Clean
- PM3 Template
- SF6 (1000nm)&SiO2-100
- SF6 clean&SiN Seasoning-100C
- SF6 clean&SiN Seasoning-250C
- SF6 clean&SiO2 Seasoning-100C
- SF6 clean&SiO2 Seasoning-250C
- SiN Dep-100C(SF6+Ar 2%SiH4)
- SiN Deposition 100C Low Stress
- SiN Deposition 100C Medium Stress
- SiN Deposition 250C Low Stress
- SiN Deposition 250C Medium Stress
- SiO2 HDR 100C (100% SiH4)
- SiO2 HDR 250C (100% SiH4)
- SiO2 LDR 100C (100% SiH4)

Flow Nodes

- Branch
- PM1
- PM3
- TM

Current Flow

```
graph TD; Start((Start)) --> TM1((TM)); TM1 --> PM1((PM1)); PM1 --> TM2((TM)); TM2 --> End((End));
```

Edit Flow Actions

DELETE ACTION

EXPAND BRANCH

View Options

Sequence

Resource Name

Category Filter

<Hide Categories> IK

Sequence:

InP Etch-200C-SFU-1 IK

DELETE FLOW SAVE FLOW

EDIT STEP EDIT SEQUENCE EDIT FLOW CAMERA POSITION SECURITY ADMIN RETURN ALARMS

Select the method to Hide/Show categories which have been assigned to recipes. This is used to organize recipes into groups of categories.