Harrick PDC-32G Plasma Cleaner Operations

This machine is to be used by authorized personnel only. For training contact: Staff Engineer, Omid Mahdavi, (520) 621-9849, omidm@email.arizona.edu

Enter all necessary information in the Log Book for each use.

Load Sample:

1) Ensure that your sample fits inside the plasma chamber.
2) Remove the glass sample holder plate from chamber carefully.
3) Place your sample onto the mid-section of the glass holder plate.
4) Insert the glass holder plate and your sample back into plasma chamber carefully.
5) Ensure vent valve on the chamber lid is closed. Turn clock-wise all the way.
6) Ensure rubber O-ring on the lid is clean and free of any debris.
7) Place lid over the chamber opening and hold lid in place with one hand.
8) Turn on the PUMP ON/OFF switch to turn on the vacuum pump.
9) Chamber vacuum should now hold lid in place.

Run Plasma:

10) Ensure RF LEVEL power switch on the front panel is on OFF.
11) Turn on the POWER switch on the front panel.
12) Wait for one minute before proceeding.
13) Open the chamber lid vent valve about 1/8 of a turn (counter-clockwise) to establish an air flow into the chamber.
14) Switch the RF LEVEL power switch to the desired setting.
15) Look for a purple glow which would indicate the presence of a plasma.
16) Run plasma for the desired time using an external timer.

Unload Sample:

17) Switch the RF LEVEL power to OFF.
18) Turn off the POWER switch.
19) Turn off the PUMP ON/OFF switch to turn off the vacuum pump.
20) Open the chamber lid vent valve to vent chamber completely.
21) Hold the lid until chamber is fully vented and the lid comes off.
22) Remove the glass sample holder from chamber and remove sample.
23) Clean the glass sample holder if necessary and re-insert back into chamber.
24) DO NOT LEAVE GLASS HOLDER ON OR AROUND THE TOOL.

Qual Data:
2” Silicon wafers coated with S1811 and patterned using a checkered mask (blocks of 2mm x 2mm). A profilometer was used to measure block step height before and after clean.

<table>
<thead>
<tr>
<th>Film</th>
<th>Plasma</th>
<th>Process Time (min)</th>
<th>Avg. Amount Removed (Ang)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photoresist Shipley 1811</td>
<td>Air (Hi Setting)</td>
<td>2</td>
<td>350</td>
</tr>
<tr>
<td>Revision</td>
<td>Description of change</td>
<td>Change initiator(s)</td>
<td>Date</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>0</td>
<td>Create Spec.</td>
<td>Omid Mahdavi, Steve Orozco</td>
<td>1-10-2007</td>
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<tr>
<td>1</td>
<td>Added Plasma Preen control unit due to larger current requirement for the larger capacity vacuum pump.</td>
<td>Omid Mahdavi</td>
<td>3-15-07</td>
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<tr>
<td>2</td>
<td>New Pump available does not require higher current than rated. Back to old op instructions.</td>
<td>Omid Mahdavi</td>
<td>4-11-07</td>
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</tbody>
</table>