VACUUM CHAMBER PM TECHNIQUE
LAM 2300 METAL ETCH
CHAMBER PM: HEAVY DEPOSITION

OBJECTIVE:
TO EFFECTIVELY PM THE LAM 2300 METAL ETCH CHAMBER IN A TIMELY MANNER, WHILE IMPROVING TOOL RECOVERY AND PARTICLE PERFORMANCE

Vacuum Chamber: LAM 2300 METAL ETCH
Vacuum Chamber Process Residue: PROCESS INDUCED RESIDUE
Vacuum Chamber Components: CHAMBER, SLIT VALVE, CHUCK AND PARTS

Old Procedure: 6 HOURS, THREE TECHS, using ScotchBrite®, DI water, 150+ wipes & IPA

New Procedure: 2 HOURS, ONE TECH, Foamtec HT4500-LAM23-1 PM Kit, DI water & IPA

Vacuum Chamber Products:
LAM2300 METAL ETCH CHAMBER PM KIT
PM Kit P/ N: HT4500-LAM23-1 PM KIT

Heavy Deposition
- (1) HT4754 UltraSOLV® Sponge
- (4) HT4536D-10-1 360 Grit Diamond ScrubPAD
- (1) HT5790S-25 MiraWIPES®
LAM 2300 Metal ETCH Chamber PM Procedure:

View "How to" instructional videos on http://www.foamtecintlwcc.com/flash/

**Step 1:** Using proper procedures and safety guidelines, shutdown and prepare LAM 2300 Metal ETCH Chamber for wet clean

**Step 2:** Properly stage a container of DI water next to the chamber and place a HT4536D 360 Grit Diamond ScrubPAD and HT4754 UltraSOLV® Sponge into the container (See Fig 1)

**Step 3:** Take damp UltraSOLV® Sponge and begin wiping Metal ETCH Chamber allowing the water to react with the process induced residue. Remove as much of the deposition as possible with the sponge (See Fig 2)

This initial wipe portion of PM will take 20-25 minutes, and if performed properly, will be able to remove much of the deposition with just the sponge
LAM 2300 Metal ETCH Chamber PM Procedure (cont’d):

Step 4: It will be important to keep the UltraSOLV® Sponge moist and clear of excess deposition by replacing the sponge into the container of DI water and rinsing clear (See Fig 3)

NOTE: The Metal ETCH Chamber will be very hot; therefore, it will require rinsing the sponge frequently in the DI water in order to keep it moist.

Step 5: After performing initial wipe with the UltraSOLV® Sponge for at least 20 minutes, take the moist 360 Grit Diamond ScrubPAD from the container of DI water and begin scrubbing the Metal ETCH Chamber (See Fig 4)

Ensure to keep the ScrubPAD moist during scrub portion of PM by replacing it in the container of DI water as necessary.
**LAM 2300 METAL ETCH CHAMBER PM PROCEDURE (CONT’D):**

**Step 6:** Be prepared to wipe the scrubbed portion of the chamber with the dampened UltraSOLV® Sponge immediately after scrubbing with the 360 Grit Diamond ScrubPAD, ensuring not to let the wet deposition dry onto the chamber wall (See Fig 5)

![UltraSOLV® Sponge wiping Metal ETCH Chamber during scrub portion of PM](image)

**Step 7:** Pull ScrubPAD across the UltraSOLV® Sponge in one direction to free ScrubPAD of deposition (See Fig 6, 7 & 8)

![ScrubPAD loaded with deposition](image)

![Pull ScrubPAD across UltraSOLV® Sponge](image)

![Unloaded ScrubPAD](image)
LAM 2300 METAL ETCH CHAMBER PM PROCEDURE (CONT’D):

**Step 8:** Continue to return UltraSOLV® Sponge and 360 Grit Diamond ScrubPAD to the container of DI water to rinse free of deposition (See Fig 9 & 10)

**NOTE:** Continue to repeat this **SCRUB - WIPE - RINSE** procedure outlined in steps 5 - 8 for the remainder of the Metal ETCH Chamber. The **KEY POINT** is to **not** let the wet deposition dry onto the chamber wall.

**Step 9:** Replace container with fresh DI water after completing half of Metal ETCH Chamber scrub

**Step 10:** Replace **HT4536D** 360 Grit Diamond ScrubPAD with a new one when ScrubPAD appears worn (expect to use three on chamber, one for e-chuck and door assembly)

**Step 11:** Using same procedure as described above, proceed to SCRUB - WIPE - RINSE the bottom portion of the e-chuck assembly and chamber door mount (See Fig 11 & 12)
LAM 2300 METAL ETCH CHAMBER PM PROCEDURE (CONT’D):

**NOTE:** May remove deposition buildup on e-chuck ceramic ring if desired (See Fig 13)

**Step 12:** Rinse out UltraSOLV® Sponge in fresh DI water. Prepare Metal ETCH Chamber for FINAL WIPE PROCEDURE by wiping all areas of chamber completely with dampened UltraSOLV® Sponge

**FINAL WIPE PROCEDURE:**

**IMPORTANT NOTE**

THE USE OF HT5790S MiraWIPE® DURING FINAL WIPE PORTION OF PROCEDURE IS A CRITICAL STEP TO EFFECTIVELY REMOVE PARTICLE DEFECTS FROM THE LAM 2300 METAL ETCH CHAMBER

**NOTE:** Figure below shows how much more deposition the Foamtec International MiraWIPE® can remove from a critical surface compared to the standard fab wiper, making the MiraWIPE® FINAL WIPE PROCEDURE the most CRITICAL STEP of the PM procedure (See Fig 14a & 14b)

MiraWIPE® are the KEY STEP for DEFECT REDUCTION and IMPROVED TOOL RECOVERY
LAM 2300 Metal ETCH Chamber PM Procedure (cont’d):

**Step 13:** Ensure to remove gloves and replace with a fresh set prior to FINAL WIPE PROCEDURE

**Step 14:** Using 100% IPA, dampen the HT5790S MiraWIPES® and perform a **THOROUGH AND EFFECTIVE FINAL WIPE PROCEDURE** of the entire LAM 2300 Metal ETCH Chamber, e-chuck, slit valve, pump ports, view ports, and all associated parts being replaced under the hi-vac within the chamber

**TOOL RECOVERY:**

Follow proper **Tool Recovery** guidelines as outlined by LAM Research Corporation