

VACUUM CHAMBER PM TECHNIQUE LAM 9600 METAL ETCH SUPER CLEAN

OBJECTIVE:

TO PM THE LAM 9600 METAL ETCH IN AN EFFECTIVE AND TIMELY MANNER WHILE IMPROVING PARTICLE PERFORMANCE, TOOL RECOVERY AND MAXIMIZING TOOL UPTIME

Vacuum Chamber:

LAM METAL ETCH

Vacuum Chamber Process Residue:

PROCESS INDUCED RESIDUE

Vacuum Chamber Components:

CHAMBER, CHAMBER WALLS, CHAMBER DOOR, PUMP PORT

Solvent:

DI WATER, IPA

Old Procedure:

ScotchBrite[®], IPA, and wipers

Vacuum Chamber Products:

- (1) [HT4754](#) UltraSOLV[®] Sponge
- (2) [HT4528D](#)-10-1 280 Grit Diamond ScrubPAD
- (1) [HT5790S](#)-25 MiraWIPES[®]

NOTE: INITIAL CLEAN MAY REQUIRE THE USE OF ADDITIONAL PRODUCTS TO EFFECTIVELY CLEAN CHAMBER BACK TO BARE METAL

RECOMMEND: PERFORM A ROUND OF 2-3 PM'S ON SAME TOOL TO ESTABLISH SUFFICIENT DATA FOR EVALUATION

LAM 9600 METAL ETCH SUPER CLEAN PM PROCEDURE:

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

- Step 1:** Using proper procedures and **safety guidelines** properly shutdown and vent entire Metal ETCH chamber

- Step 2:** Reduce ETCH chamber heater settings to 35°C to 40°C

- Step 3:** Place [HT4754](#) UltraSOLV® Sponge and UltraSOLV® 280 Grit Diamond ScrubPAD in container with approximately 1 liter of DI water

- Step 4:** Using the dampened UltraSOLV® Sponge, proceed to wipe down all areas throughout Metal ETCH chamber as this will remove any flakes and gross deposition buildup. Continue to re-soak and dampen the UltraSOLV® Sponge as necessary

- Step 5:** With UltraSOLV® Sponge, dampen and moisten a 6" to 8" scrubbing area within the chamber

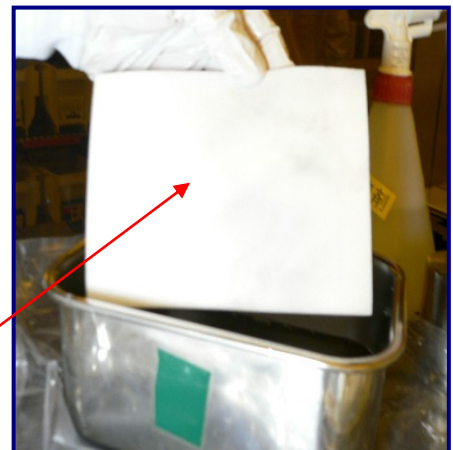
- Step 6:** With dampen UltraSOLV® 280 Grit Diamond ScrubPAD, proceed to scrub off deposition from moistened area

- Step 7:** To help unload ScrubPAD and UltraSOLV® Sponge of deposition, continually return them back into container of DI water as necessary (See Fig 1 & 2)



Fig 1: UltraSOLV® Sponge loaded with deposition

Fig 2: UltraSOLV® Sponge free of deposition after rinse in DI water



LAM 9600 METAL ETCH SUPER CLEAN PM PROCEDURE (CONT'D):

NOTE: It will also be effective to unload the ScrubPAD of deposition by pulling across the UltraSOLV[®] Sponge in one direction (See Fig 3, 4 & 5)



Fig 3: ScrubPAD loaded with deposition

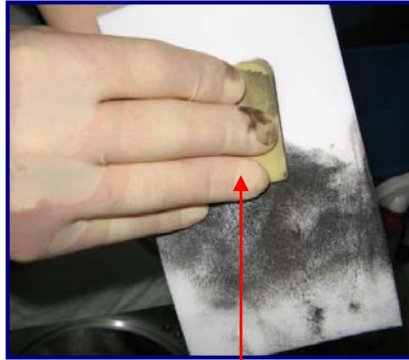


Fig 4: Pull ScrubPAD across UltraSOLV[®] Sponge

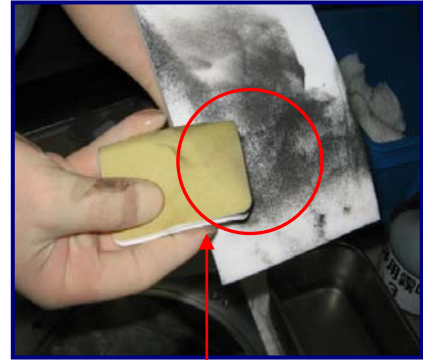


Fig 5: Unloaded ScrubPAD

- Step 8:** Continue to repeat process throughout entire chamber until all deposition is removed. It is important to keep the ScrubPAD and chamber moist with DI water during clean
- Step 9:** As water becomes filled with deposition, recommend disposing dirty DI water in appropriate hazardous waste collection tank and replacing with fresh DI water
- Step 10:** After all areas within entire chamber have been effectively cleaned, take freshly rinsed out UltraSOLV[®] Sponge and thoroughly wipe out and prep the chamber for Final IPA Wipe-Down

FINAL IPA WIPE PROCEDURE:

IMPORTANT:

THIS IMPORTANT STEP MUST BE EFFECTIVELY FOLLOWED IN ORDER TO ACHIEVE THE MAXIMUM EFFICIENCY OF TOOL RECOVERY AND PERFORMANCE. CONTINUE TO WIPE-DOWN ALL OF THE EFFECTED PM AREAS WITHIN THE ETCH CHAMBER REPEATEDLY UNTIL ALL MIRAWIPES[®] NO LONGER REMOVE ANY MORE DEPOSITION

LAM 9600 METAL ETCH SUPER CLEAN PM PROCEDURE (CONT'D):

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 6a & 6b)

Fig 6a: Current fab wiper after completely wiping LAM 9600



Fig 6b: Particles picked up using HT5790S MiraWIPES® after completely wiping with current fab wiper

MiraWIPES® are the KEY STEP for DEFECT REDUCTION and IMPROVED TOOL RECOVERY

Step 11: Using 100% IPA, dampen the HT5790S MiraWIPES® and perform a **THOROUGH AND EFFECTIVE FINAL WIPE-DOWN** of the ETCH chamber, chamber door, slit valve, o'ring grooves and all sealing surfaces

Step 12: Ensure to wipe down all spare parts placed back into the chamber using IPA dampened HT5790S MiraWIPES®