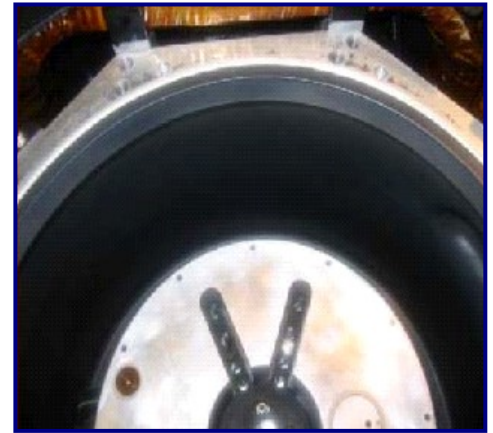




BEFORE



AFTER

VACUUM CHAMBER PM TECHNIQUE AMAT WxZ/WxP

OBJECTIVE:

TO EFFECTIVELY PM THE AMAT WxZ/WxP CHAMBER IN A TIMELY MANNER, WHILE HELPING TO MINIMIZE PARTICLE ISSUES, IMPROVE TOOL PERFORMANCE AND REDUCE HAZARDOUS WASTE

<u>Vacuum Chamber:</u>	AMAT WxP
<u>Vacuum Chamber Process Residue:</u>	HeWEB PROCESS INDUCED RESIDUE
<u>Vacuum Chamber Components:</u>	CHAMBER REGION

Old Procedure: Scotch-Brite™*, hydrogen peroxide DI water, wipers and IPA

New Procedure: Diamond ScrubPAD, DI water, MiraWIPES® and IPA

DANGER:

USE OF HYDROGEN PEROXIDE (H₂O₂) CAUSES A VARIETY OF ENVIRONMENTAL, HEALTH, AND SAFETY CONCERNS. CAN CAUSE PROLONGED PUMP DOWN TIMES AND HIGH VOLTAGE ARCING. BREATHING APPARATUS AND FULL ACID PPE IS RECOMMENDED WHILE SCRUBBING WITH H₂O₂. SCRUBBING WHILE USING H₂O₂ INCREASES THE RISK OF FIRES AND/OR THE RELEASE OF HAZARDOUS CHEMICAL FUMES, POTENTIALLY RESULTING IN PERSONAL INJURY AND PROPERTY DAMAGE

Vacuum Chamber Products:

- (2) [HT4536D](#)-10-1 360 Grit Diamond ScrubPAD
- (1) [HT4580D](#)-10-1 800 Grit Diamond ScrubPAD
- (1) [HT4754](#) UltraSOLV® Sponge
- (2) [HT5790S](#)-5 MiraWIPES®

AMAT WxZ/WxP CHAMBER PM PROCEDURE:

- Step 1:** Using proper procedures and **safety guidelines** shutdown, vent and prep WxP chamber for PM
- Step 2:** Place [HT4754](#) UltraSOLV[®] Sponge & 360 Grit Diamond ScrubPAD into container with approximately 1 liter of DI water (See Fig 1)

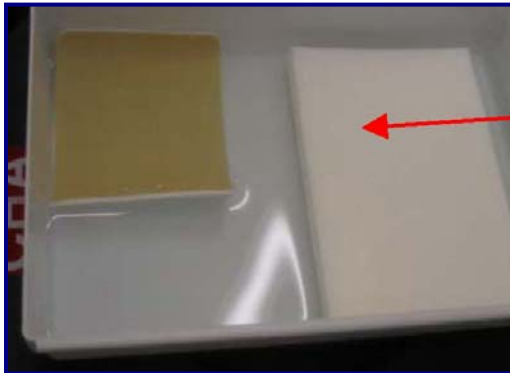


Fig 1: 360 Grit Diamond ScrubPAD & UltraSOLV[®] Sponge in 1-liter DI water

- Step 3:** Immediately after opening WxP chamber, wipe down entire chamber area with dampened UltraSOLV[®] Sponge. Concentrate on edge of e-chuck, as this area will begin to react when it is opened to atmosphere (See Fig 2)

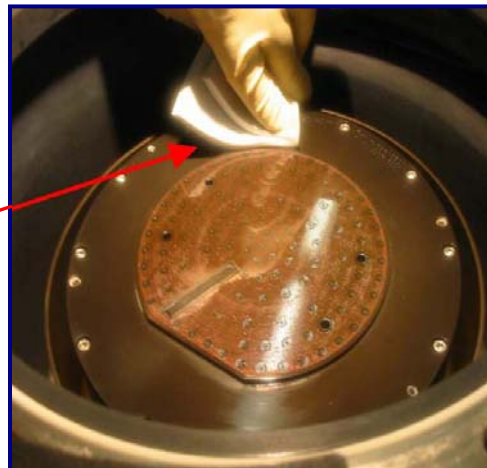


Fig 2: Dampened UltraSOLV[®] Sponge wiping e-chuck

AMAT WxZ/WXP CHAMBER PM PROCEDURE (CONT'D):

Step 4: With a dampened UltraSOLV[®] Sponge, wipe a 6" to 8" scrubbing area on WxP chamber wall

NOTE: **DI WATER IS THE ONLY SOLVENT USED DURING THE SCRUB PORTION OF WXP CHAMBER PM**

Step 5: Using the dampened 360 Grit Diamond ScrubPAD, scrub deposition from moistened area on WxP chamber wall (See Fig 3)

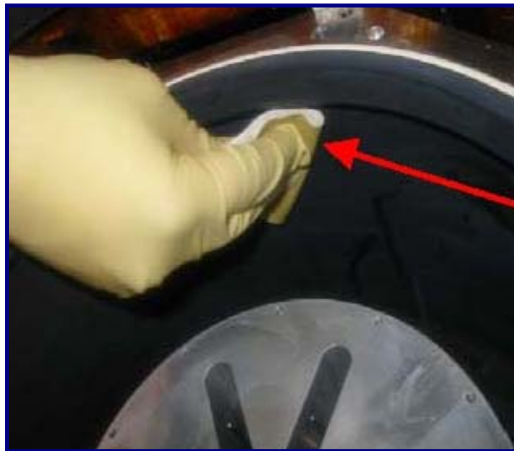


Fig 3: Dampened 360 Grit Diamond ScrubPAD scrubbing chamber wall

Step 6: Before area being scrubbed dries out, take the dampened UltraSOLV[®] Sponge and wipe off deposition from WxP chamber (See Fig 4)



Fig 4: Dampened UltraSOLV[®] Sponge wiping off deposition from WxP chamber wall

NOTE: **IT IS CRITICAL TO WIPE THE CHAMBER IMMEDIATELY AFTER COMPLETING THE SCRUB, AS THE DEPOSITION WILL QUICKLY DRY. IT WILL HAVE TO BE RE-SCRUBBED TO BE REMOVED**

AMAT WxZ/WXP CHAMBER PM PROCEDURE (CONT'D):

Step 7: As 360 Grit Diamond ScrubPAD becomes loaded with deposition, pull in one motion across UltraSOLV[®] Sponge to unload (See Fig 5, 6 & 7)



Fig 5: ScrubPAD loaded with deposition

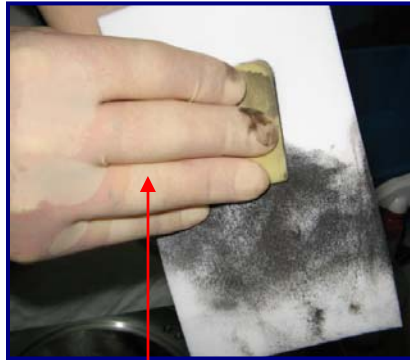


Fig 6: Pull ScrubPAD across UltraSOLV[®] Sponge



Fig 7: Unloaded ScrubPAD

Step 8: Unload UltraSOLV[®] as much as possible by placing it in container of DI water and **RINSE-OUT** thoroughly (See Fig 8 & 9)



Fig 8: Loaded-up UltraSOLV[®] Sponge



Fig 9: UltraSOLV[®] Sponge AFTER rinse

AMAT WxZ/WXP CHAMBER PM PROCEDURE (CONT'D):

CHAMBER CATHODE

Step 9: Use a dampened 800 Grit Diamond ScrubPAD and gently scrub off deposition from cathode area. Use UltraSOLV[®] Sponge to wipe area after scrubbing (See Fig 10)



Fig 10: Cleaned cathode area

Step 10: Use an 800 Grit Diamond ScrubPAD to polish all vacuum sealed areas throughout WxP chamber

Step 11: Repeat steps 5 – 10 until entire WxP chamber has been effectively cleaned

AMAT WxZ/WXP CHAMBER PM PROCEDURE (CONT'D):

FINAL IPA WIPE PROCEDURE:

VERY IMPORTANT NOTE

THE USE OF HT5790S MiraWIPES® DURING THE FINAL WIPE PROCEDURE IS A CRITICAL STEP TO EFFECTIVELY REMOVE PARTICLE DEFECTS FROM THE 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 11a & 11b)



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

Step 12: Dampen the HT5790S MiraWIPES® with IPA and perform a **THOROUGH AND EFFECTIVE FINAL WIPE-DOWN** of the entire chamber assembly, including cathode, slit valves and all vacuum sealing surfaces

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

AMAT WxZ/WXP CHAMBER PM PROCEDURE (CONT'D):

affected PM areas on buffer lid until all MiraWIPES[®] no longer remove any more deposition

Step 13: Wipe down all shields and spare parts placed back into the WxP chamber using additional IPA dampened [HT5790S](#) MiraWIPES[®]