Foamtec International
Wilshire Contamination Control Division
cleaning critical surfaces

VACUUM CHAMBER PM TECHNIQUE
AMAT 5500 TXZ CHAMBER

OBJECTIVE:
TO EFFECTIVELY PM THE AMAT 5500 TxZ IN A TIMELY MANNER, WHILE IMPROVING TOOL RECOVERY AND PARTICLE PERFORMANCE

Vacuum Chamber: AMAT
Vacuum Chamber Process Residue: FILM FROM CVD DEPOSITION OF TD MAT
Vacuum Chamber Components: CHAMBER, EXIT AND ENTRY PORTS

Old Method: Cleanroom wipers and ScotchBrite® with H_2O_2
Note: Use of H_2O_2 causes a variety of environmental, health, and safety concerns. It can cause prolonged pump down times.
Solvent: DI water, IPA

Vacuum Chamber Products:
- (1) HT4754 UltraSOLV® Sponge
- (1) HT4536DS-10 **OR** HT4536D-10 360 Grit Diamond ScrubPAD, (slit - optional)
- (1) HT4560S-10 **OR** HT4560-10 600 Grit Diamond ScrubPAD, (slit - optional)
- (1) HT4513PDS-10 1350 Grit Diamond ScrubPAD **OR** (1) HT4512PS 1200 Grit Diamond ScrubPAD
- (20-25) HT4790 or HT4794 UltraSOLV® Wipers
- (20-25) HT1700 UltraSOLV® Swabs
- (10) HT1701 UltraSOLV® Swabs
- (25-50) HT1702 UltraSOLV® Swabs
- (10-15) HT1714 UltraSOLV® Swabs
- A container that can hold a minimum of 1 liter of DI water

AMAT 5500 TxZ Chamber PM Procedure:

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

Step 1: Vacuum inside of the chamber

Step 2: Keep fluid from the heater well by stuffing the area with 3-4 balled-up HT4790 or HT4794 wipers

Step 3: Wipe the inside of the chamber using an H_2O dampened HT4754 sponge

Step 4: Use several DI dampened HT4790 or HT4794 wipers to line the inside of the slit valve and pump port

NOTE: Dampen wipers by immersing them repeatedly in a container of DI water and squeezing them while submersed to make sure they are thoroughly wet. It is critical to thoroughly squeeze the water from the wipers before rolling and inserting them into the slit valve and pump port

Step 5: Alternate between scouring the chamber with the HT4560-10 or the HT4560S-10 (slitted) ScrubPAD and remove abrasion build-up with sponge

Step 6: To clear ScrubPAD of sludge, wipe the pad lightly in one direction, with an HT4754 Sponge (See Fig 1, 2 & 3)

Fig 1: ScrubPAD loaded with deposition

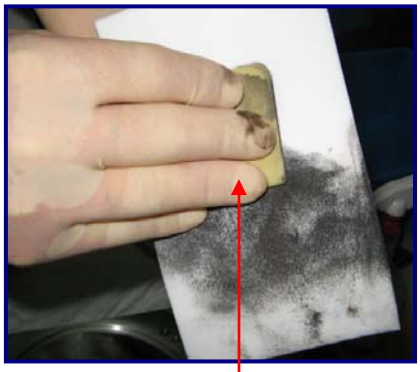

Fig 2: Pull ScrubPAD across UltraSOLV® Sponge

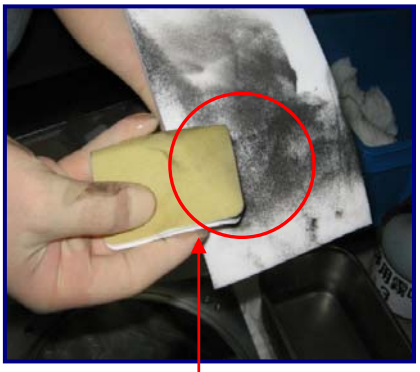

Fig 3: Unloaded ScrubPAD

AMAT 5500 TxZ Chamber PM Procedure (cont'd):

Step 7: Unload UltraSOLV® as much as possible by placing it in container of DI water and **RINSE-OUT** thoroughly (See Fig 4 & 5)

Fig 4: Loaded-up UltraSOLV® Sponge

Fig 5: UltraSOLV® Sponge AFTER rinse

Step 8: Use the HT4512PS-10 ScrubPAD to clean the chamber lid and the opposing sealing surface in the same manner. Do not scrub the showerhead if left in place during the clean. Use the HT4513PDS-10 ScrubPAD for stubborn deposits and to reduce cleaning time on the lid and opposing sealing surface

Step 9: Remove the dampened UltraSOLV® Wipers from the slit valve. Use a cleaned HT4536DS-10 or an HT4536D-10 ScrubPAD to remove the hardened deposit from the slit valve

NOTE: See Step 6 for ScrubPAD cleaning procedures. The ScrubPAD can be manipulated for easier cleaning of the surface. Continue to alternate between scrubbing with the ScrubPAD and wiping with the Sponge until yellowish deposit is removed. After scrubbing thoroughly, clean both areas with the Sponge

The slit valve should be cleaned with DI dampened wipers followed by IPA until no contamination is visible on the wiper. Several IPA dampened HT1700 swabs should be used to clean the hard-to-reach areas until no contaminant is visible on the swab

Repeat the same process to clean the pump port

Step 10: Immerse the quartz window in DI water for 10-15 minutes and then use the HT4512P-10 ScrubPAD to lightly scrub the deposits off the part. Clean the quartz port by folding an HT4536DS-10 ScrubPAD in half and pull it back and forth through the opening. Be sure to clean both the upper and lower surface. Use an HT1700 Swab to remove any loose contamination generated in the scrubbing step

AMAT 5500 TxZ Chamber PM Procedure (cont'd):

NOTE: For 12000 wafer PM procedures the cleaning time can be reduced by using the HT4536DS-10 Diamond ScrubPAD to scrub the hard to remove residue from perimeter of the slit valve, lid and view port. For 3000 wafer PM procedures the HT4512DS-10 ScrubPAD may be substituted for the HT4560-10S ScrubPAD

Step 11: To final clean the chamber, lid and sealing surfaces use HT4790 or HT4794 wipes. First use 1 to 2 wipers dampened with DI water and then follow with IPA dampened Wipers until there is no contamination left on the wipe

NOTE: The IPA step should consume 10-12 wipers. To reduce recovery time, use the HT1700 and HT1701 swabs wetted with IPA to clean the corners, crevices, view port opening and o-ring grooves

Step 12: Minimize the possibility of system leaks by thoroughly cleaning all o-ring grooves. Use IPA dampened (but not saturated) HT1700 swabs to clean o-ring grooves. Continue use of HT1700 swabs until contamination is no longer visible on swab. Next use IPA dampened HT1714 swabs to clean bottom curved corner surfaces along the entire length of the o-ring groove. Continue use of HT1714 swabs until contamination is no longer visible. Once the o-ring has been inserted, be sure to use an HT4790 or HT4794 wiper with a small amount of IPA to clean the scaling surface

For in-chamber Heater-assembly cleaning, please employ the following steps:

Step 13: Use an HT4512P-10 ScrubPAD to clean the perimeter in 10% sections. Make sure to use a clean section of the pad on each new section to be scrubbed as the residue transferred will clog the pad

NOTE: As this is a dry procedure, it is not recommended to follow the normal procedure of using a dampened wiper to clean the ScrubPAD

Step 14: Vacuum the perimeter of the heater chuck

Step 15: Clean the corner and vertical wall of the perimeter with a very slightly dampened HT1700 or HT1790 swab until no visible contamination transfers to the swab. This may take 5-10 swabs*. Follow with several dry swabs to remove any residual IPA

As in the above mentioned fashion, delicately clean the roughened surface that runs parallel to the ground with an HT4790 or HT4794 Wiper, slightly dampened in IPA, until no visible contamination transfers to the wiper. Due to the rough texture of the surface, it is important to gently pull the wiper across the surface

* As build-up tends to remain trapped in the corner, it is recommended to use 3-5 HT1732 swabs, slightly dampened in IPA, to ensure the corner is completely cleaned