



BEFORE



AFTER

VACUUM CHAMBER PM TECHNIQUE WCVD NVLS ALTUS HEATER CLEAN

OBJECTIVE:

TO EFFECTIVELY PM THE WCVD NVLS ALTUS HEATER IN A TIMELY MANNER, WHILE IMPROVING BACKSIDE PRESSURE FAULT AND PARTICLE PERFORMANCE

<u>Vacuum Chamber:</u>	NVLS/WCVD
<u>Vacuum Chamber Process Residue:</u>	THICKER FILM DEPOSITION
<u>Vacuum Chamber Components:</u>	ALTUS HEATER

<u>Old Procedure:</u>	2 Hours Tool Recovery: Induced backside pressure fault and particle issues
<u>New Procedure:</u>	DI water, Foamtec Products, 0.5 hour, 1 technician Tool Recovery: Reduced recovery time and no particle issues

Vacuum Chamber Products:

- (1) HT4536DC3-1 360 Diamond Grit ScrubDISK®
- (1) HT4513PDC3-1 1350 Diamond Grit ScrubDISK®
- (1) HT4754 UltraSOLV® Sponge
- (1) HT5790S-25 MiraWIPE® Wiper
- (1) FT951 Firm Handle



NOVELLUS WCVD ALTUS HEATER PM PROCEDURE:

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

Step 1: Using proper procedures and **safety guidelines**, properly prepare NVLS Altus fro heater scrub and clean

Step 2: Using the dummy wafer, check the backside pressure before polishing. The NVLS vendor suggests to proceed heater polish if pressure >10Torr (See Fig 1)

Fig 1: Use dummy wafer to check the backside pressure before polishing



Step 3: Use the FT951 firm handle with HT4536DC3-1 Diamond ScrubDISK[®] to “DRY” polish the heater surface (See Fig 2)

Fig 2: “DRY” polishing the heater surface



Step 4: Polish the heater in a “Figure 8” motion in order to keep the best uniformity. At the beginning, the user will feel a stronger friction while polishing which is caused by the thicker process film and will be released within 5-10 minutes of scrubbing

NOVELLUS WCVD ALTUS HEATER PM PROCEDURE (CONT'D):

Step 5: When ScrubDISK[®] becomes loaded up with deposition, pull across UltraSOLV[®] Sponge to unload ScrubDISK[®]. This helps to keep the function and efficiency of the ScrubDISK[®] (See Fig 3, 4 & 5)



Fig 3: ScrubDISK[®] loaded up with deposition



Fig 4: Pull ScrubDISK across UltraSOLV[®] Sponge



Fig 5: Unloaded ScrubDISK[®]

Step 6: Unload UltraSOLV[®] as much as possible by placing it in container of DI water and **RINSE-OUT** thoroughly (See Fig 6 & 7)



Fig 6: Loaded-up UltraSOLV[®] Sponge



Fig 7: UltraSOLV[®] Sponge AFTER rinse

Step 7: Use a vacuum cleaner to suck up the excess particles throughout the entire heater surface. Then use a MiraWIPE[®] Wiper to sufficiently wipe down the whole heater (See Fig 8 & 9)



Fig 8: Vacuum cleaner sucking up the particles

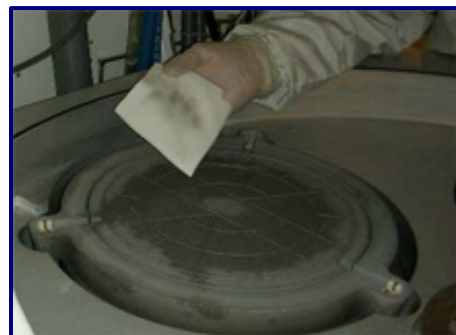


Fig 9: Wipe down the whole heater with MiraWIPES[®]

NOVELLUS WCVD ALTUS HEATER PM PROCEDURE (CONT'D):

FINAL WIPE PROCEDURE:

IMPORTANT NOTE:

THE USE OF HT5790S MiraWIPES® DURING THE FINAL WIPE PROCEDURE IS A CRITICAL STEP TO EFFECTIVELY REMOVE PARTICLE DEFECTS FROM HEATER

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 10a & 10b)



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

Step 8: Use the dummy wafer to check backside pressure after cleaning. If the pressure >10Torr, you can continue polishing until the NVLS pressure Spec is (<10 Torr) (See Fig 11)



Fig 11: Use dummy wafer to check the backside pressure under spec (<10Torr)

NOVELLUS WCVD ALTUS HEATER PM PROCEDURE (CONT'D):



COMPLETED NVLS ALTUS HEATER POLISH AND CLEAN