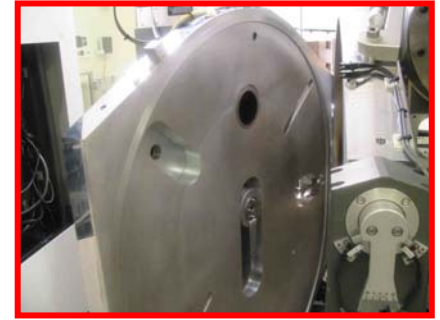




GSD Process Chamber Before



GSD Process Chamber After

APPLICATION NOTE AXCELIS PROCESS CHAMBER CLEAN

<u>Surface Build-up:</u>	Process Induced Residue
<u>Tool:</u>	Axcelis GSD 200E Ion Implanter
<u>Tool Parts:</u>	Process Chamber
<u>Standard Method:</u>	H ₂ O ₂ , Scotchbrite, DI Water, Wipers and IPA
<u>Proposed Method:</u>	Foamex Products, 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 PHOSPHORUS WHILE USING H₂O₂ INCREASES THE RISK OF FIRES AND/OR THE RELEASE OF HAZARDOUS CHEMICAL FUMES, POTENTIALLY RESULTING IN PERSONAL INJURY AND PROPERTY DAMAGE

Products:

- (1) HT4754 UltraSOLV[®] Sponge
- (1) HT4536D-10-1 Diamond ScrubPAD, 360 Grit
- (1) HT4536DC3-1 Diamond ScrubDISK[®], 360 Grit
- (1) FT901 ErgoSCRUB[®]
- (1) HT179080D-1 Diamond ScrubTIP[™], 800 Grit
- (25) HT5790S MiraWIPES[®]

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

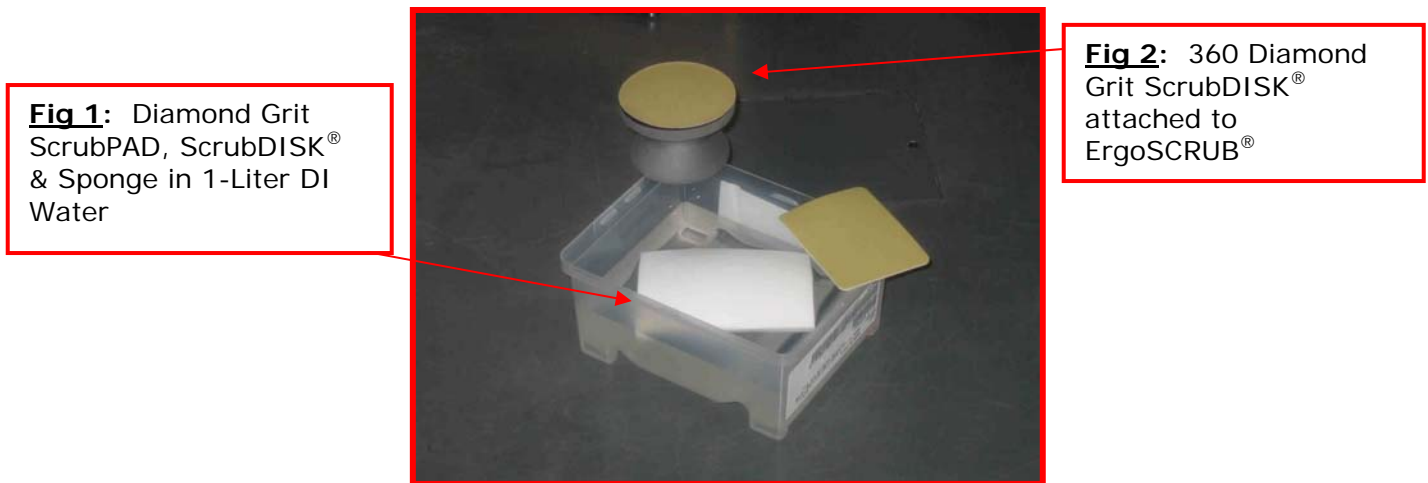
Objectives:

- Eliminate the use of H₂O₂
- Reduces Cleaning and Recovery Time
- Reduces Hazardous Waste
- Reduction of Particle Defects

AXCELIS GSD 200E PROCESS CHAMBER CLEAN:

Step 1: Using proper procedures and SAFETY Guidelines properly shutdown, vent and remove all Process Chamber parts from chamber.

Step 2: Place HT4754 UltraSOLV[®] Sponge, 360 Diamond Grit ScrubPAD and 360 Diamond Grit ScrubDISK[®] into container with approximately 1 Liter of DI Water. (See Fig 1).



Step 3: Vacuum the bottom of the Process Chamber to remove excess flakes using an approved Arsenic vacuum system.

Step 4: Using the Dampened UltraSOLV[®] Sponge, proceed to Wipe Down all areas throughout Process Chamber.

NOTE: Continue to Re-Soak and dampen the UltraSOLV[®] Sponge as necessary.

Step 5: Attach Dampened 360 Diamond Grit ScrubDISK[®] to ErgoSCRUB[®] (See Fig 2 above).

Step 6: With UltraSOLV[®] Sponge, dampen a 6" to 8" scrubbing area within the source chamber.

Step 7: Using 360 Diamond ScrubDISK[®] and ErgoSCRUB[®] proceed to scrub deposition from moistened area within Process Chamber (See Fig 3).

Fig 3: 360 Diamond Grit ScrubDISK[®] Scrubbing Deposition from Process Chamber



Step 8: Remove the deposition from the Scrubbed area by Wiping with the UltraSOLV[®] Sponge (See Fig 4).



Fig 4: UltraSOLV[®] Sponge Removing Deposition from Scrubbed Area

Step 9: To Un-Load ScrubDISK[®] of Deposition, place the ScrubDISK[®] onto the Dampened UltraSOLV[®] Sponge and pull across in one direction (See fig 3, 4 & 5)



Fig 3: Loaded Diamond ScrubDISK[®]

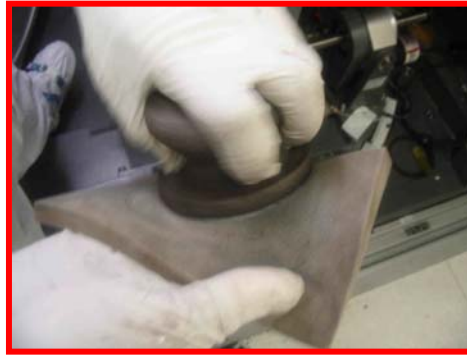


Fig 4: Un-Loading Technique onto UltraSOLV[®] Sponge

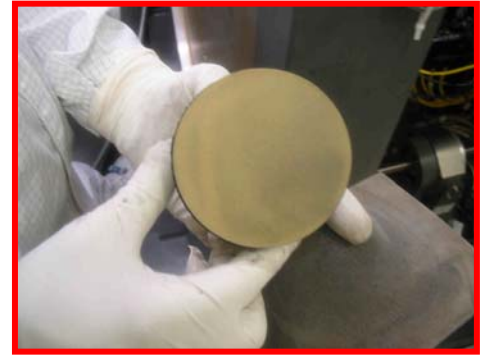


Fig 5: Clean, Un-Loaded Diamond ScrubDISK[®]

Step 10: To Un-Load UltraSOLV[®] Sponge return back to container of DI Water to rinse.

Step 11: Continue to repeat process throughout entire chamber using ScrubDISK[®] with ErgoSCRUB[®]. Use 360 Diamond Grit ScrubPAD for remaining areas that cannot be reached with ErgoSCRUB[®], unloading ScrubPAD on UltraSOLV[®] Sponge as necessary.

Step 12: Continue to repeat process throughout entire Process Chamber until all deposition is removed. It is important to keep the ScrubPAD and Chamber moist with DI Water during clean.

Step 13: Moisten the HT179080D-1 ScrubTIP[™] with DI Water and proceed to remove deposition that has built up on the Edges or any areas that cannot be reached by the ScrubPAD.

Step 14: Unload ScrubTIP[™] onto UltraSOLV[®] Sponge as previously described for ScrubDISK[®].

Step 15: After all areas within entire chamber have been effectively cleaned, rinse out UltraSOLV[®] Sponge and thoroughly wipe out chamber as you Prep the Process Chamber for Final IPA Wipe-Down.

FINAL IPA WIPE-DOWN:

Step 1: Dampen the HT5790S MiraWIPES[®] with IPA and perform a **THOROUGH AND EFFECTIVE FINAL WIPE-DOWN** of the entire Process Chamber, including O-Ring Grooves and all 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 affected PM areas within the Process Chamber repeatedly until all MiraWIPES[®] no longer remove any more deposition

Step 2: Ensure to wipe down all Spare Parts placed back into the Axcelis GSD Process Chamber using additional IPA dampened HT5790S MiraWIPES[®].

NOTE: The following pictures show the GSD Chamber being wiped out effectively with a standard fab wiper. The technician wipe out the chamber until no more visible deposition was removed using their current wiper.

The same technician then followed using the Foamex HT5790S MiraWIPE[®] in the same area as before and was able to remove a considerable amount more of deposition.

This is the main cause for Particle Problems and Long PM Recovery Times.



Standard fab wiper after completing Final Wipe of Chamber.



Foamex HT5790S MiraWIPE[®] results after wiping exact same area as before.