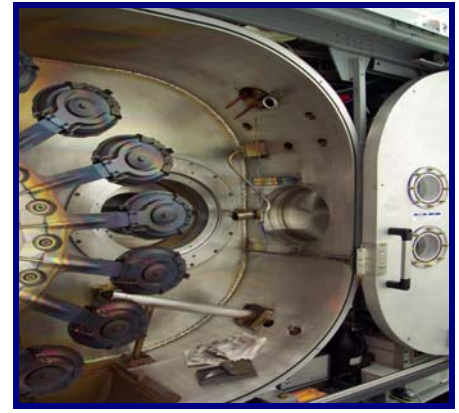


BEFORE



AFTER

VACUUM CHAMBER PM TECHNIQUE
APPLIED MATERIALS®* XR80
IMPLANT CHAMBER CLEAN

OBJECTIVE:

TO EFFECTIVELY PM THE VERTICAL DIFFUSION FURNACE DOOR ASSEMBLY IN A TIMELY MANNER, WHILE IMPROVING TOOL RECOVERY AND PARTICLE PERFORMANCE

Vacuum Chamber: XR80 CHAMBER
Vacuum Chamber Residue: BF3, P, SB, IN, ASH3 BEAM RESIDUE
Vacuum Chamber Components: IMPLANT CHAMBER

Old Procedure: ScotchBrite™*, hydrogen peroxide (H₂O₂), 40 grit sand paper, wire mesh
Solvent: DI water, IPA (only)
NOTE: May not clean Implant Chamber due to current method is very dirty and not very effective

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

Vacuum Chamber Products:

- (1) [HT4754](#) UltraSOLV® Sponge
- (2) [HT4528D](#)-10 280 Grit Diamond ScrubPAD
- (1) [HT4580D](#)-10 800 Grit Diamond ScrubPAD
- (2) [HT4536DC3](#)-1 360 Grit Diamond ScrubDISK®
- (1) [FT901](#) Soft Handle w/Loop ErgoSCRUB®
- (5) [HT179036D](#) 360 ScrubTIP®
- (25) [HT5790S](#) MiraWIPE® Wipers

*Applied Materials® is a registered trademark of Applied Materials, Inc.

*Scotch-Brite™ is a trademark of 3M

XR80 IMPLANT CHAMBER CLEAN PM PROCEDURE:

- Step 1:** Remove all necessary parts from Implant Chamber (faradays, graphite, shields, etc...)

- Step 2:** Vacuum inside of the chamber using an approved arsenic vacuum system

- Step 3:** Wipe-down inside of the chamber using a DI water dampened UltraSOLV[®] [HT4754](#) Sponge

- Step 4:** Using a DI water dampened [HT4536DC-1](#) ScrubDISK[®], attached to the [FT901](#) ErgoSCRUB[®], scrub an 8"x8" area within the Implant Chamber

- Step 5:** Wipe-down the effected chamber area using the DI water dampened UltraSOLV[®] [HT4754](#) Sponge

- Step 6:** Unload the ScrubDISK[®] of deposition by wiping the UltraSOLV[®] [HT4754](#) Sponge with the ScrubDISK[®] in one direction (See Fig 1, 2, & 3)



Fig 1: ScrubDISK[®] loaded with deposition



Fig 2: Pull & twist ScrubDISK[®] across UltraSOLV[®] Sponge

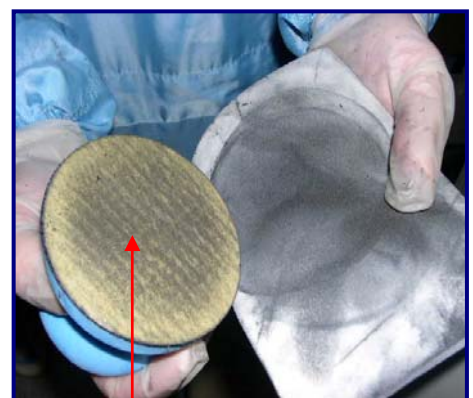


Fig 3: Unloaded ScrubDISK[®]

XR80 IMPLANT CHAMBER CLEAN PM PROCEDURE (CONT'D):

Step 7: Unload the UltraSOLV® [HT4754](#) Sponge by moistening with DI water and ringing out into a HazMat container (See Fig 4 & 5)

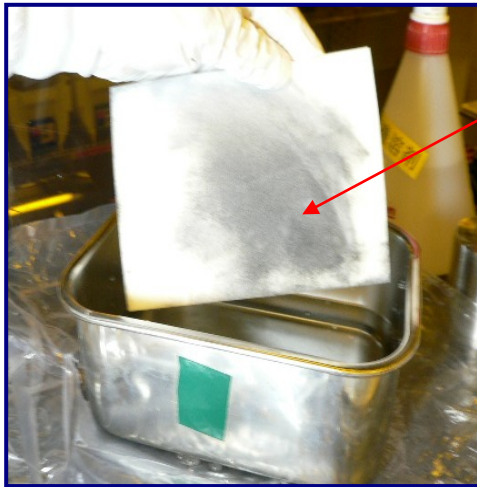


Fig 4: UltraSOLV®
Sponge loaded with
deposition

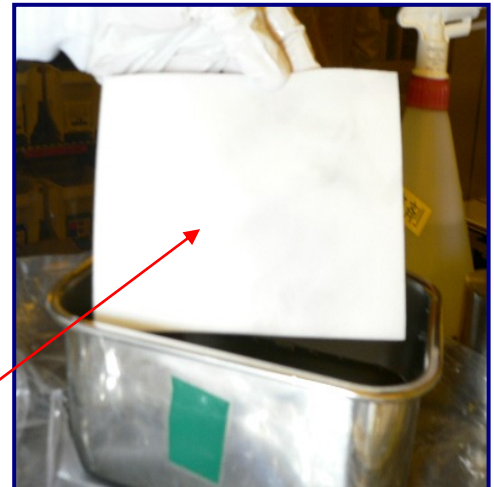


Fig 5: UltraSOLV®
Sponge free of
deposition after rinse in
DI water

Step 8: Repeat steps 4 – 7, using the [HT4528D](#) ScrubPAD and the [HT179036D](#) ScrubTIP® where necessary, until all deposition is removed

Step 9: OPTIONAL – After effectively cleaning the Implant Chamber, technician may want to use the [HT4580D](#) ScrubPAD and the [HT4754](#) UltraSOLV® Sponge within certain areas of the Implant Chamber (decel bushings, view ports...) to lightly scrub the fine scratches that may be left behind from using the 280 Grit Diamond ScrubPAD

FINAL WIPE PROCEDURE:

IMPORTANT NOTE

THE USE OF [HT5790S](#) MiraWIPES® DURING FINAL WIPE PORTION OF PROCEDURE IS A CRITICAL STEP TO EFFECTIVELY REMOVING PARTICLE DEFECTS

XR80 IMPLANT CHAMBER 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 IPA Wipe the most **CRITICAL STEP** of the PM procedure (See Fig 6a & 6b)

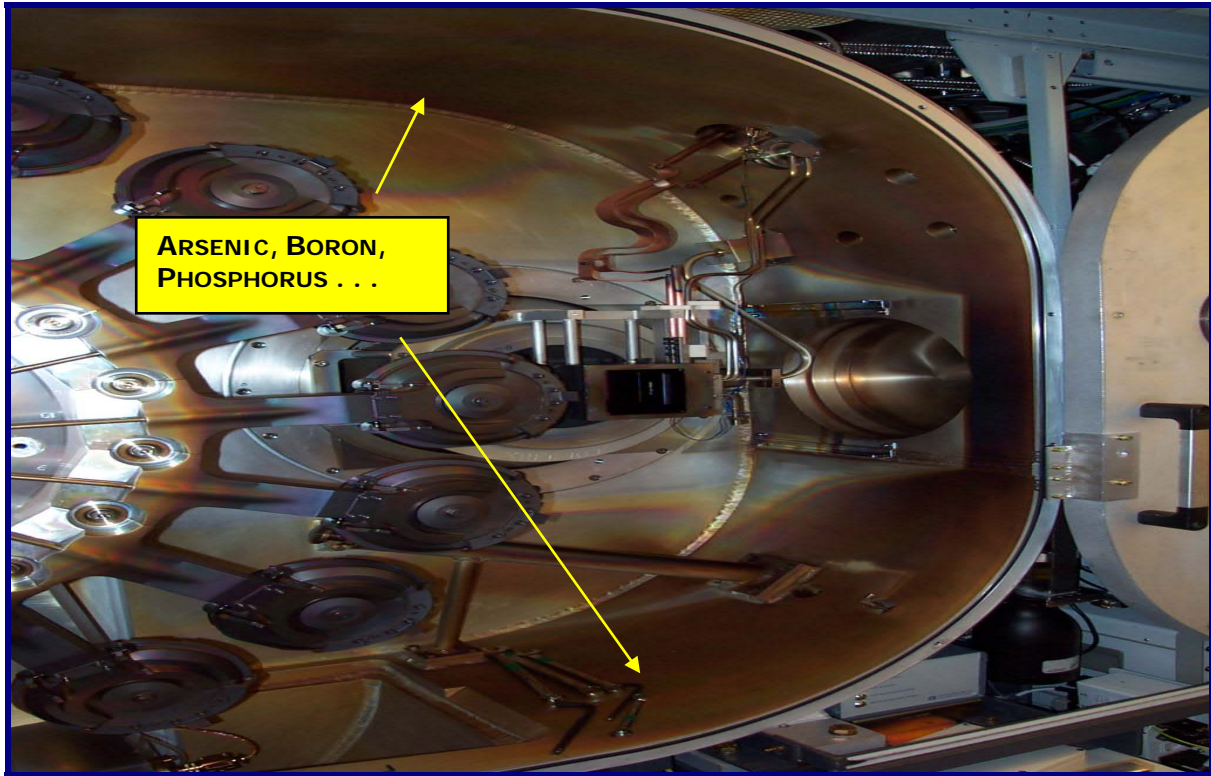


MiraWIPES® are the KEY STEP for DEFECT REDUCTION and IMPROVED TOOL RECOVERY

Step 10: Repeatedly wipe the inside of the Implant Chamber using an IPA dampened [HT5790S](#) MiraWIPE®. Ensure to wipe entire chamber effectively until all areas are removed of deposition

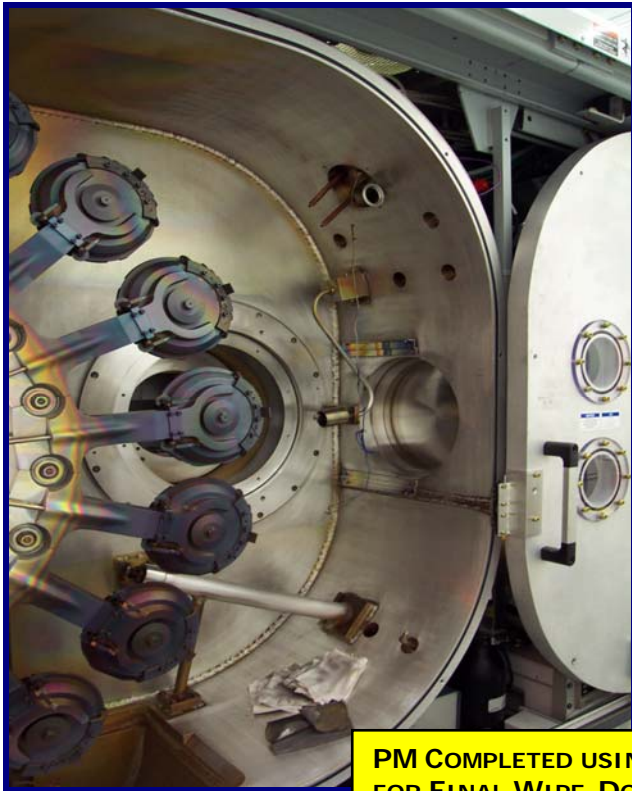
XR80 IMPLANT CHAMBER CLEAN PM PROCEDURE (CONT'D):

Implant Chamber – PreClean



XR80 IMPLANT CHAMBER CLEAN PM PROCEDURE (CONT'D):

Implant Chamber – PostClean



**ENTIRE AMOUNT OF WASTE GENERATED
UPON COMPLETION OF THIS CHAMBER
PM.**

**PM COMPLETED USING ONLY DI WATER AND IPA
FOR FINAL WIPE-DOWN**

NO H₂O₂ (HYDROGEN PEROXIDE)

XR80 IMPLANT CHAMBER CLEAN PM PROCEDURE (CONT'D):

