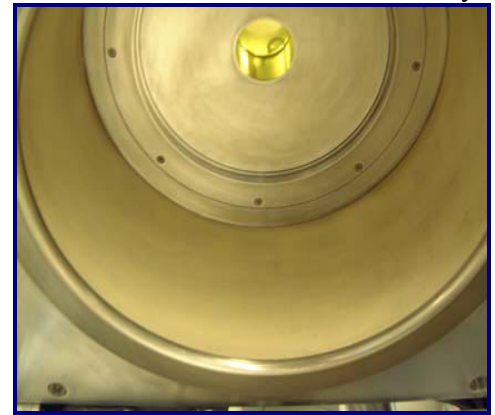


**BEFORE**



**AFTER**

## VACUUM CHAMBER PM TECHNIQUE PLASMATHERM VERSALOCK 700 CHAMBER

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### OBJECTIVE:

TO PM THE PLASMATHERM VERSALOCK 700 CHAMBER IN AN EFFECTIVE AND TIMELY MANNER WHILE IMPROVING PARTICLE PERFORMANCE, TOOL RECOVERY AND MAXIMIZING TOOL UPTIME

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#### Vacuum Chamber:

PLT VERSALOCK 700 CHAMBER

#### Vacuum Chamber Process Residue:

VARIOUS HARD OXIDE, NITRIDE, AND GLASSLIKE RESIDUES

#### Vacuum Chamber Components:

CERAMIC DOME, CERAMIC CLAMP PLATE, WAFER PEDESTAL, CHAMBER WALLS

#### Old Procedure:

ScotchBrite<sup>®</sup>, commercial grade sandpaper and clean room wipers. Hard, lengthy scrubbing regimes generate large amounts of particles

#### Solvent:

DI water, IPA (Only)

#### Safety:

BA to prevent breathing in dangerous fumes

#### Vacuum Chamber Products:

- (1) [HT4754](#) UltraSOLV<sup>®</sup> Sponge
- (1) [HT4536DC3](#)-1 360 Grit Diamond ScrubDISK<sup>®</sup>
- (1) [HT4536D](#)-10-1 360 Grit Diamond ScrubPAD\*\*
- (1) [HT4580D](#)-10-1 800 Grit Diamond ScrubPAD
- (1) [FS206](#) ScrubCLEAN<sup>®</sup> Light Duty Abrasive Sponge
- (1) [FT901](#) ErgoSCRUB<sup>®</sup> Soft Handle w/Loop
- (1) [HT5790S](#)-25 MiraWIPE<sup>®</sup> Wipers
- (1) Container that can hold 1 liter of DI water

\*\*Optional

**PLASMATHERM VERSALOCK 700 CHAMBER PM PROCEDURE:**

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

**Pre-Cleaning the Tool:**

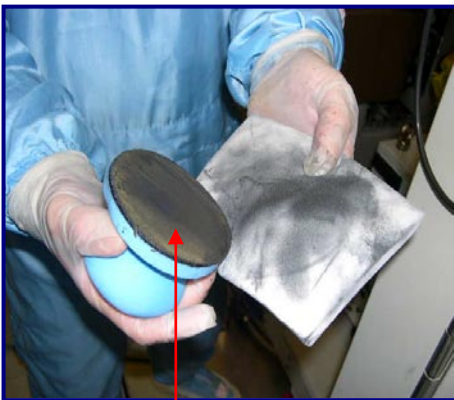
**Step 1:** Wipe-down inside of the chamber, ceramic dome and ceramic clamp ring using a DI water dampened UltraSOLV<sup>®</sup> [HT4754](#) Sponge

**Scrubbing the Tool:**  
**CERAMIC DOME**

**Step 2:** Using DI water dampened [HT4536DC3-1](#) ScrubDISK<sup>®</sup>, attached to the [FT901](#) ErgoSCRUB<sup>®</sup>, scrub an 8"x8" area within the ceramic dome

**Step 3:** Wipe-down the affected area using the DI water dampened [HT4754](#) UltraSOLV<sup>®</sup> Sponge

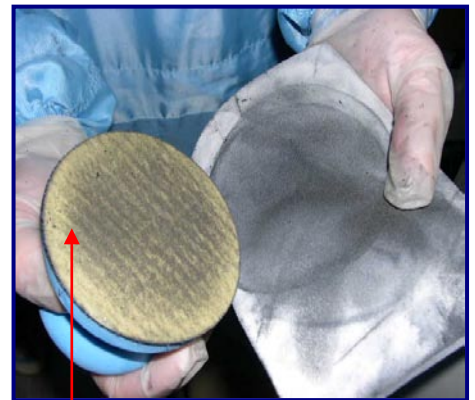
**Step 4:** Unload the ScrubDISK<sup>®</sup> of deposition by wiping the [HT4754](#) UltraSOLV<sup>®</sup> Sponge with the ScrubDISK<sup>®</sup> in one direction (See Fig 1, 2 & 3)



**Fig 1:** ScrubDISK<sup>®</sup> loaded with deposition



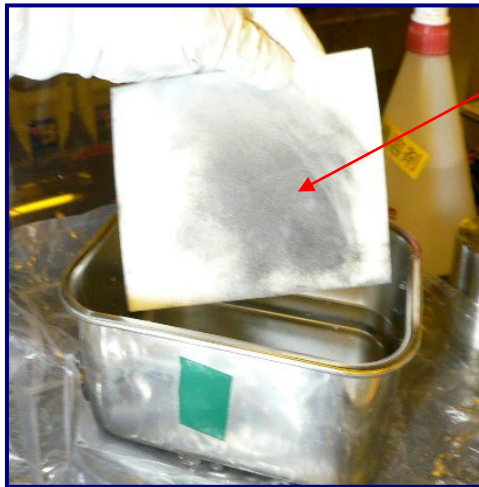
**Fig 2:** Pull & twist ScrubDISK<sup>®</sup> across UltraSOLV<sup>®</sup> Sponge



**Fig 3:** Unloaded ScrubDISK<sup>®</sup>

**PLASMATHERM VERSALOCK 700 CHAMBER PM PROCEDURE (CONT'D):**

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



**Fig 4:** UltraSOLV<sup>®</sup> Sponge loaded with deposition



**Fig 5:** UltraSOLV<sup>®</sup> Sponge free of deposition after rinse in DI water

**Step 6:** Repeat steps 2 – 5, using the [HT4536DC3](#)-1 ScrubDISK<sup>®</sup> attached to the [FT901](#) ErgoSCRUB<sup>®</sup> where necessary until all deposition is removed from ceramic dome

**Step 7:** Using the [HT4536DC3](#)-1 ScrubDISK<sup>®</sup> attached to the [FT901](#) ErgoSCRUB<sup>®</sup>, remove the rainbow stain from the metal section above ceramic dome. Use the same procedure as employed for cleaning the ceramic dome. If necessary remove the ScrubDISK<sup>®</sup> from the ErgoSCRUB<sup>®</sup> Handle to get at hard to reach areas or use a [HT4536D](#)-10-1 UltraSOLV<sup>®</sup> ScrubPAD

**Step 8:** Repeat step 7 until rainbow stain has been removed from the metal section

**Step 9:** Using the [HT4580D](#)-10-1 UltraSOLV<sup>®</sup> ScrubPAD, polish the metal section above ceramic dome. Repeat actions used in step 4 and 5 to unload deposition from ScrubPAD

**NOTE:** **ENSURE CERAMIC CLAMP RING IS IN THE DOWN POSITION**

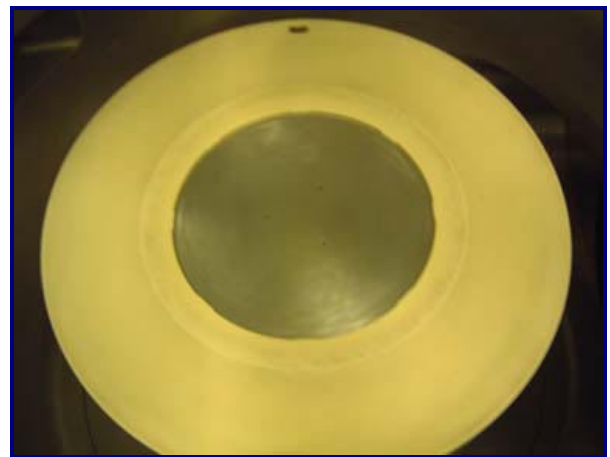
**Step 10:** Using DI water dampened [HT4536DC3](#)-1 UltraSOLV<sup>®</sup> ScrubDISK<sup>®</sup>, attached to the [FT901](#) ErgoSCRUB<sup>®</sup> and scrub a small area at a time, taking great care not to scrub the wafer pedestal

**PLASMATHERM VERSALOCK 700 CHAMBER PM PROCEDURE (CONT'D):**

- Step 11:** Wipe-down the affected area using the DI water dampened UltraSOLV® [HT4754](#) Sponge
- Step 12:** Unload the ScrubDISK® of deposition by wiping the UltraSOLV® [HT4754](#) Sponge with the ScrubDISK® in one direction (See Fig 1, 2 & 3)
- Step 13:** Unload the UltraSOLV® [HT4754](#) Sponge by moistening with DI water and ringing out into a HazMat container (See Fig 4 & 5)
- Step 14:** Repeat steps 9 – 13, using the [HT4536DC3-1](#) ScrubDISK® attached to the [FT901](#) ErgoSCRUB® where necessary, until all deposition is removed from ceramic clamp ring



**Fig 6:** Ceramic clamp ring before clean



**Fig 7:** Ceramic clamp ring after clean

**WAFER PEDESTAL**

- Step 15:** Using DI water dampened [FS206](#) ScrubCLEAN®, lightly scrub a small area of the wafer pedestal at a time
- Step 16:** Wipe-down the affected area using the DI water dampened UltraSOLV® [HT4754](#) Sponge

**PLASMATHERM VERSALOCK 700 CHAMBER PM PROCEDURE (CONT'D):**

**Step 17:** Repeat steps 15 – 16, until satisfied that wafer pedestal has been cleaned

**CHAMBER WALLS**

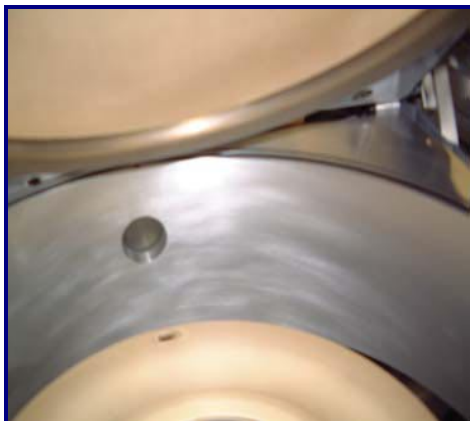
**Step 18:** Using DI water dampened [HT4580D](#)-1 ScrubPAD, scrub an 8"x8" area within the chamber walls. Include area around ceramic dome

**Step 19:** Wipe-down the affected area using the DI water dampened UltraSOLV<sup>®</sup> [HT4754](#) Sponge

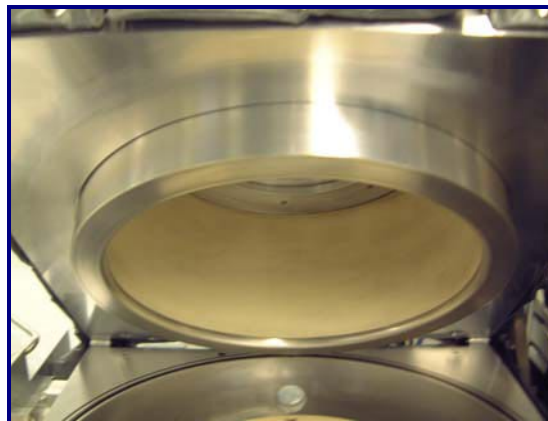
**Step 20:** Unload the ScrubDISK<sup>®</sup> of deposition by wiping the UltraSOLV<sup>®</sup> [HT4754](#) Sponge with the ScrubDISK<sup>®</sup> in one direction (See Fig 1, 2 &3)

**Step 21:** Unload the UltraSOLV<sup>®</sup> [HT4754](#) Sponge by moistening with DI water and ringing out into a HazMat container (See Fig 4 & 5)

**Step 22:** Repeat steps 19 – 21, using the [HT4580D](#)-10-1 ScrubPAD where necessary, until all deposition is removed from chamber walls



**Fig 8:** Chamber walls



**Fig 9:** Metal ring around ceramic dome

**PLASMATHERM VERSALOCK 700 CHAMBER PM PROCEDURE (CONT'D):**

**FINAL WIPE PROCEDURE:**

**IMPORTANT NOTE**

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**THE USE OF HT5790S MiraWIPES<sup>®</sup> DURING FINAL WIPE PORTION OF PROCEDURE IS A CRITICAL STEP TO EFFECTIVELY REMOVING PARTICLE DEFECTS FROM THE PLT VERSALOCK 700**

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**NOTE:** Figure below shows how much more deposition the Foamtec International MiraWIPE<sup>®</sup> can remove from a critical surface compared to the standard fab wiper, making the MiraWIPE<sup>®</sup> Final IPA Wipe the most **CRITICAL STEP** of the PM procedure (See Fig 10a & 10b)

**Fig 10a:** Current fab wiper after completely wiping Versalock 700



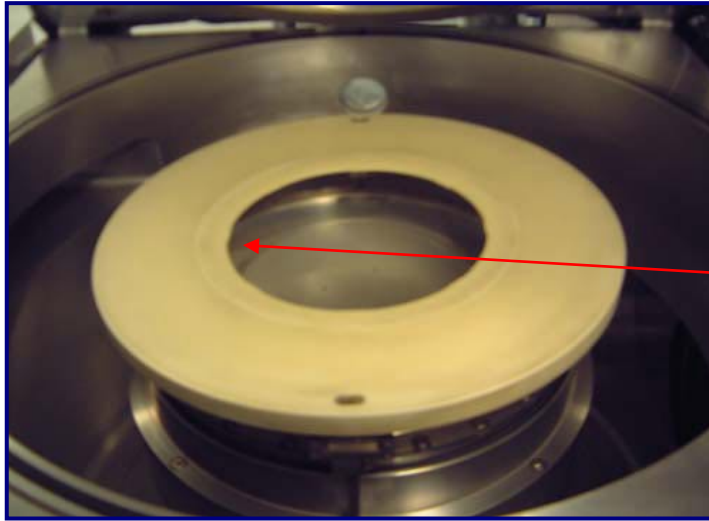
**Fig 10b:** Particles picked up using HT5790S MiraWIPES<sup>®</sup> after completely wiping with current fab wiper

**MiraWIPES<sup>®</sup> are the KEY STEP for DEFECT REDUCTION and IMPROVED TOOL RECOVERY**

**Step 23:** Work from the top down starting with the metal section above the ceramic dome, repeatedly wiping around using an IPA dampened HT5790S MiraWIPE<sup>®</sup>. Ensure to wipe effectively until all areas are removed of deposition

**PLASMATHERM VERSALOCK 700 CHAMBER PM PROCEDURE (CONT'D):**

**Step 24:** Ensure to raise the ceramic clamp ring so as to remove any debris under the clamp ring and wafer pedestal. Ensure to wipe effectively until all areas are removed of deposition



Ensure to wipe wafer pedestal area under clamp ring

**Fig 11:** Clamp ring in the up position for final wipe