



VACUUM CHAMBER PM TECHNIQUE IMPLANT PARTS CLEAN

OBJECTIVE:

TO PM THE IMPLANT PARTS IN AN EFFECTIVE AND TIMELY MANNER, WHILE IMPROVING TOOL RECOVERY AND PARTICLE PERFORMANCE

Vacuum Chamber:

IMPLANT PARTS

Vacuum Chamber Process Residue:

BF3, P, Sb, In, AsH3 BEAM DEPOSITION

Vacuum Chamber Components:

ALL PARTS ASSOCIATED WITH APPLIED,
AXCELIS AND, VARIAN: MEDIUM CURRENT,
HIGH CURRENT AND HIGH ENERGY ION
IMPLANTERS THAT ARE REMOVED AND
CLEANED DURING PREVENTATIVE
MAINTENANCE

Standard Method:

Scotch-Brite® w/H₂O₂, 40 grit sand paper, wire mesh, bead
blast, air sanders

Solvent:

DI water, IPA (only)

DANGER:

Use of 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

Standard Products Needed for Cleaning Various Implanter Parts: source liners, source bushings, source can, electrode plates, baffles, ceramic insulators, graphite pieces, etc.

Vacuum Chamber Products:

- [HT4754](#) UltraSOLV® Sponge
- [HT45XXD](#)-10 Diamond ScrubPAD (140 – 1350 Diamond Grit Assortment)
- [HT45XXDC3](#)-1 Diamond ScrubDISK® (140 – 1350 Diamond Grit Assortment)
- [FT901](#) Soft handle w/loop ErgoSCRUB®
- [HT1700](#)-5 UltraSOLV® Swab
- [HT1790XXD](#)-5 Diamond ScrubTIP® (180 – 800 Diamond Grit Assortment)
- [HT5790S](#) MiraWIPE® Wipers

IMPLANT PARTS CLEAN:

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

- Step 1:** Place part inside a certified parts clean hood
- Step 2:** Vacuum the inside of the selected part using an approved arsenic vacuum system removing any loose flakes
- Step 3:** Wipe-down selected part using a DI water dampened UltraSOLV® [HT4754](#) Sponge
- Step 4:** Using a DI water dampened HT45XXDC-1 ScrubDISK®, attached to the [FT901](#) ErgoSCRUB®, or a DI water dampened [HT45XXD](#)-10 ScrubPAD, scrub an 8"x 8" area within the selected part
- Step 5:** Wipe-down the affected area using the DI water dampened UltraSOLV® [HT4754](#) Sponge removing the loose deposition
- 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: ScrubPAD loaded with deposition



Fig 2: Pull ScrubPAD across UltraSOLV® Sponge



Fig 3: Unloaded ScrubPAD

- 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: Loaded-up UltraSOLV® Sponge



Fig 5: UltraSOLV® Sponge AFTER rinse

IMPLANT PARTS CLEAN (CONT'D):

- Step 8:** Repeat steps 4 – 7 until as much deposition is removed as possible
- Step 9:** Using the [HT1790XXD-1](#) Diamond ScrubTIP® continue to scrub the hard to reach areas (i.e. view ports, pump ports, deep angles . . .etc.) within the selected part
- Step 10:** Wipe the affected hard to reach areas using a DI water dampened [HT1700-5](#) UltraSOLV® Swab removing the loose deposition
- Step 11:** Repeat steps 9 & 10 until all deposition is removed

FINAL WIPE PROCEDURE:

IMPORTANT NOTE

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

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 6a & 6b)

Fig 6a: Current fab wiper after completely wiping implant parts



Fig 6b: Particles picked up using [HT5790S](#) MiraWIPES® after completely wiping with current fab wiper

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

- Step 12:** Repeatedly wipe the inside of the selected part using an IPA dampened [HT5790S](#) MiraWIPE®. Ensure to wipe entire part effectively until all areas are removed of deposition
- Step 13:** Recommend placing selected part in oven to bake out until ready to be replaced back into system