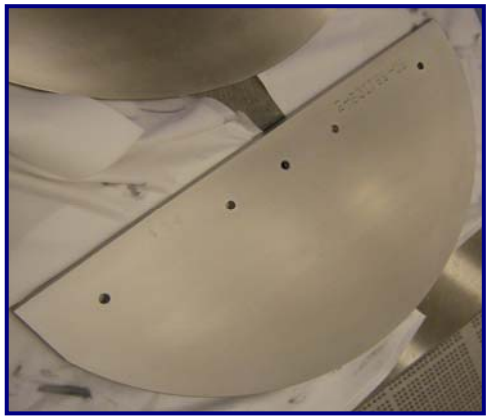
BEFORE

Foamtec International
Wilshire Contamination Control Division
cleaning critical surfaces



AFTER

VACUUM CHAMBER PM TECHNIQUE
HITACHI ETCH PARTS CLEAN

OBJECTIVE:

TO EFFECTIVELY PM THE PARTS ASSOCIATED WITH THE HITACHI ETCH CHAMBER IN A TIMELY MANNER WHILE HELPING TO IMPROVE TOOL PERFORMANCE AND REDUCE PARTICLE DEFECTS

Vacuum Chamber: HITACHI ETCH
Vacuum Chamber Process Residue: PROCESS INDUCED RESIDUE
Vacuum Chamber Components: VALVE VARIABLE FLAPPER & GATE VALVE

Old Procedure: Soak in ultrasonic sink for 30+minutes, wipe with IPA and place in oven to bake out
PROBLEMS: Not able to remove by-product, causing particle issues and extended outgassing

New Procedure: <20 minutes using 2000D Grit ScrubPAD, UltraSOLV® Sponge, MiraSWABS® & MiraWIPES®
BENEFITS: ABLE TO REMOVE BY-PRODUCT COMPLETELY, HELPING REDUCE PARTICLE DEFECTS AND IMPROVE TOOL RECOVERY

Vacuum Chamber Products:

- (1) HT4520PD-10-1 2000 Grit Diamond ScrubPAD
- (1) HT4754 UltraSOLV® Sponge
- (3) HT1511FC-5 MiraSWABS® (15 MiraSWABS®)
- (3) HT5790S-5 MiraWIPES® (15 MiraWIPES®)

HITACHI ETCH PARTS PM PROCEDURE:

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

Step 1: Using proper procedures and **safety guidelines**, remove associated parts from Hitachi ETCH Chamber

Step 2: Properly stage a container of DI water next to the Hitachi ETCH parts and place the Foamtec International HT4520PD ScrubPAD and HT4754 UltraSOLV® Sponge into the container (See Fig 1 & 2)

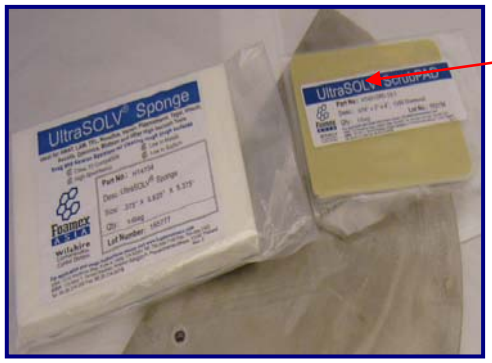
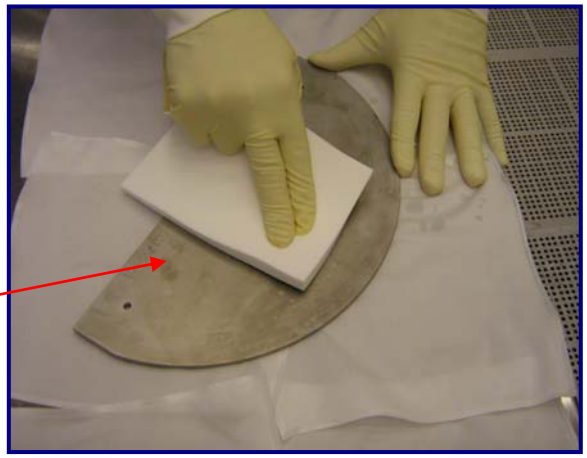


Fig 1: ScrubPAD and UltraSOLV® Sponge

Fig 2: ScrubPAD and UltraSOLV® Sponge in container of DI water

Step 3: Take **lightly dampened** UltraSOLV® Sponge and wipe Hitachi ETCH parts (See Fig 3)

Fig 3: UltraSOLV® Sponge wiping flapper valve



Step 4: Take **lightly dampened** 2000 Grit Diamond ScrubPAD scrub off deposition from Hitachi ETCH parts

HITACHI ETCH PARTS PM PROCEDURE (CONT'D):

Step 5: As 2000 Grit Diamond ScrubPAD begins to load up with deposition, pull ScrubPAD across dampened UltraSOLV® Sponge to properly unload Diamond ScrubPAD (See Fig 4, 5 & 6)

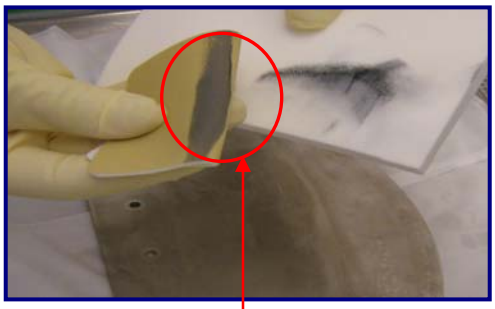


Fig 4: Diamond ScrubPAD loaded with deposition

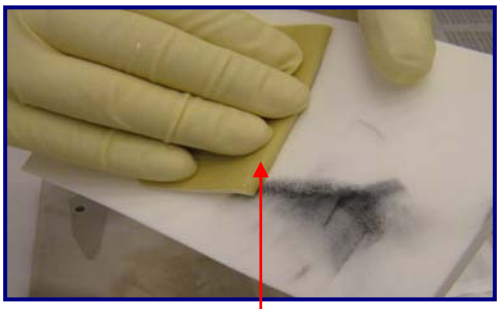


Fig 5: Pull ScrubPAD across UltraSOLV® Sponge

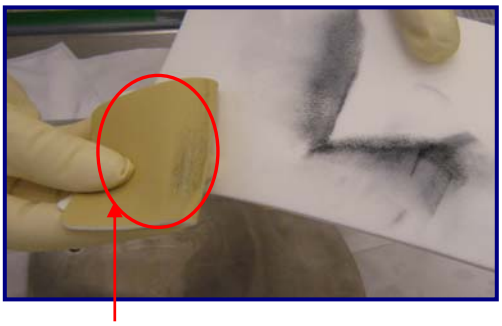


Fig 6: Unloaded Diamond ScrubPAD

Step 6: Unload UltraSOLV® as much as possible by placing it in container of DI water and **RINSE-OUT** thoroughly (See Fig 7 & 8)

Fig 7: Loaded-up UltraSOLV® Sponge

Fig 8: UltraSOLV® Sponge AFTER rinse

Step 7: Using the dampened UltraSOLV® Sponge, wipe off deposition from Hitachi ETCH parts (See Fig 9 & 10)

NOTE: **THIS IS AN IMPORTANT STEP TO HELP REDUCE THE AMOUNT OF WIPERS NEEDED TO COMPLETE PM**

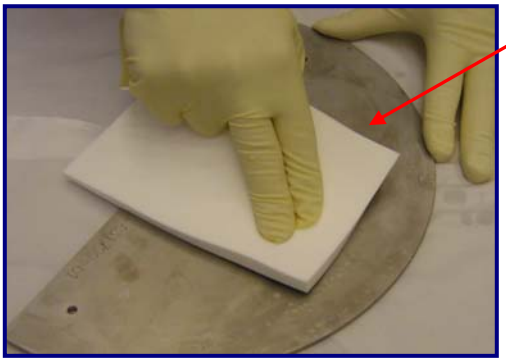
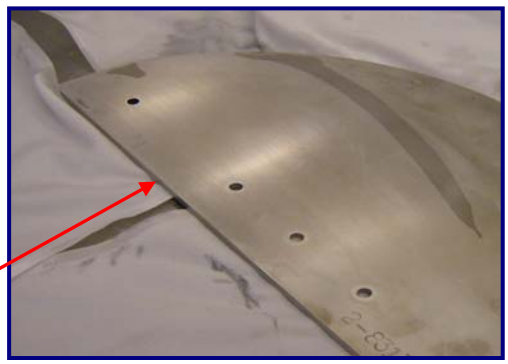


Fig 9: UltraSOLV® Sponge wiping Hitachi ETCH part

Fig 10: Hitachi ETCH part **free** of deposition



HITACHI ETCH PARTS PM PROCEDURE (CONT'D):

FINAL WIPE PROCEDURE:

IMPORTANT NOTE

MUST USE HT5790S MiraWIPES® AND HT1511FC MiraSWABS® DURING FINAL WIPE PORTION OF PROCEEDURE TO EFFECTIVELY REMOVE PARTICLE DEFECTS FROM HITACHI ETCH PARTS

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 11a & 11b)

Fig 11a: Current fab wiper after completely wiping flapper valve

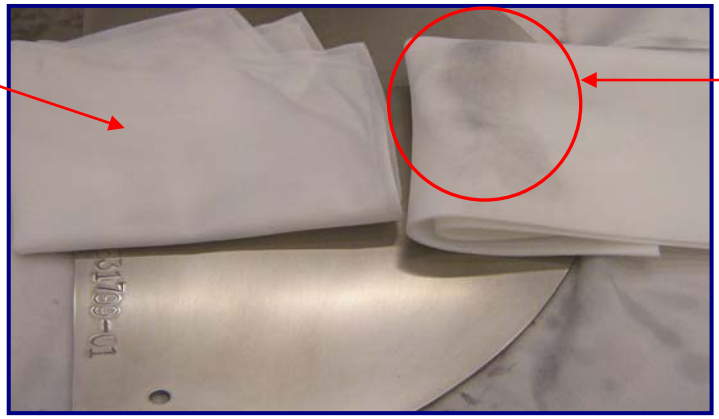


Fig 11b: Particles picked up using UltraSOLV® Foam Wiper after completely wiping with current fab wiper

NOTE: Below is an example of the particles left behind on the Hitachi ETCH flapper valve after the final wipe portion of the PM was performed with **HT5790S MiraWIPES®** (See Fig 10 & 11)

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

HITACHI ETCH PARTS PM PROCEDURE (CONT'D):

Step 8: After scrubbing Hitachi ETCH parts, fold the HT5790S MiraWIPE® into quarters and dampen with IPA

Step 9: With the dampened MiraWIPE® wipe down all areas of the Hitachi ETCH parts, ensuring to refold the MiraWIPE® as necessary to expose a clean side of the MiraWIPE® as you are wiping the parts

NOTE: **REPLACE WITH A NEW DAMPENED MIRAWIPE® AS NECESSARY**

Step 10: Dampen the HT1511FC MiraSWAB® with IPA and wipe out the hard to reach areas, such as o-ring grooves and screw holes (See Fig 12 & 13)

MiraSWABS® are the KEY STEP for DEFECT REDUCTION

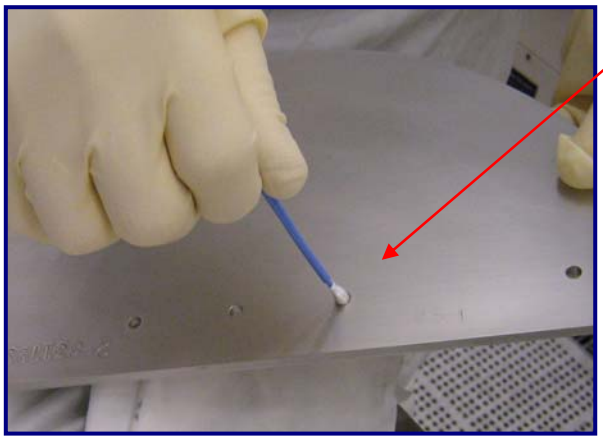


Fig 12: HT1511FC MiraSWAB® effectively wiping screw holes on flapper valve

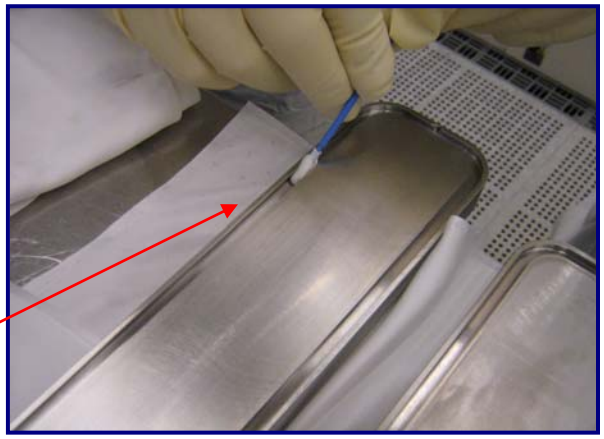


Fig 13: HT1511FC MiraSWAB® effectively wiping o-ring groove on gate valve

Step 11: Repeat above Hitachi ETCH chamber parts PM procedure and FINAL WIPE PROCEDURE for all associated Hitachi ETCH parts

Step 12: Using proper procedures and **safety guidelines** reinstall Hitachi ETCH parts back into Hitachi ETCH chamber