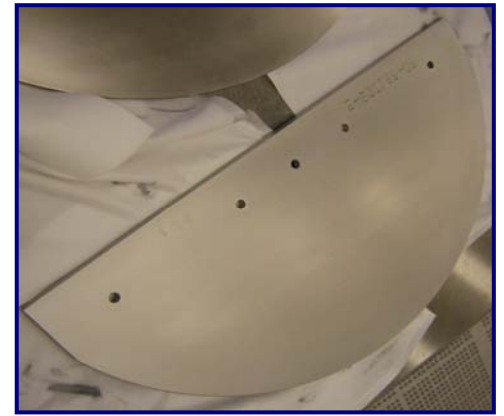




**BEFORE**



**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<sup>®</sup> Sponge, MiraSWABS<sup>®</sup> & MiraWIPES<sup>®</sup>

**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<sup>®</sup> Sponge
- (3) [HT1511FC](#)-5 MiraSWABS<sup>®</sup> (15 MiraSWABS<sup>®</sup>)
- (3) [HT5790S](#)-5 MiraWIPES<sup>®</sup> (15 MiraWIPES<sup>®</sup>)

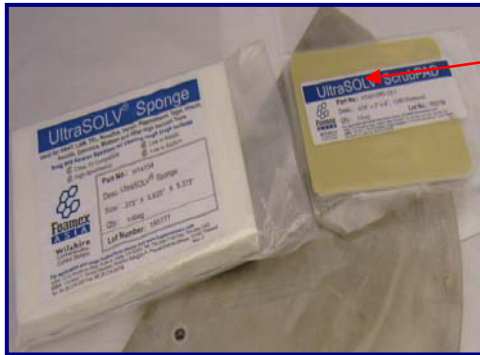


**HITACHI ETCH PARTS PM PROCEDURE:**

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)



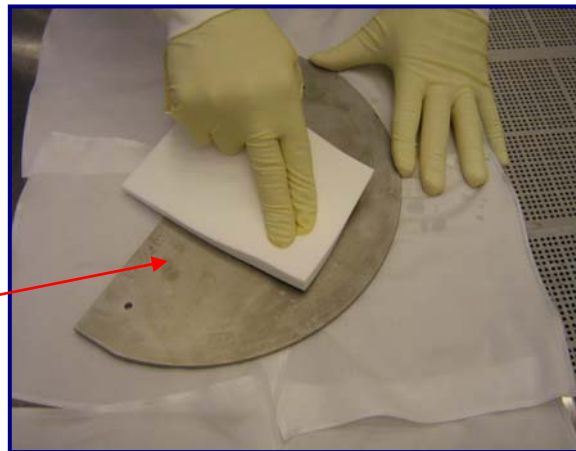
**Fig 1:** ScrubPAD and UltraSOLV® Sponge

**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)

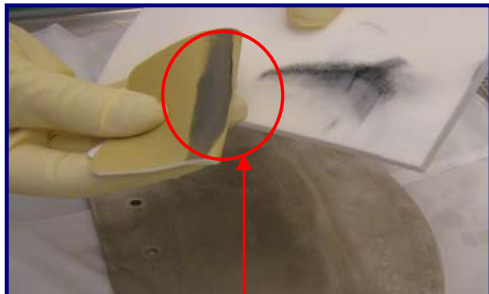
**Fig 3:** UltraSOLV® Sponge wiping flapper valve



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

**HITACHI ETCH PARTS PM PROCEDURE (CONT'D):**

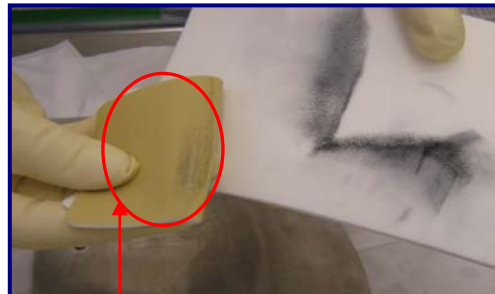
**Step 5:** As 2000 Grit Diamond ScrubPAD begins to load up with deposition, pull ScrubPAD across dampened UltraSOLV<sup>®</sup> Sponge to properly unload Diamond ScrubPAD (See Fig 4, 5 & 6)



**Fig 4:** Diamond ScrubPAD loaded with deposition



**Fig 5:** Pull ScrubPAD across UltraSOLV<sup>®</sup> Sponge

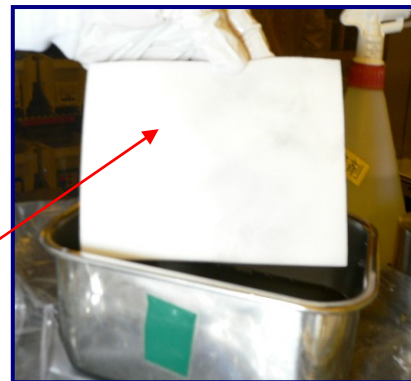


**Fig 6:** Unloaded Diamond ScrubPAD

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



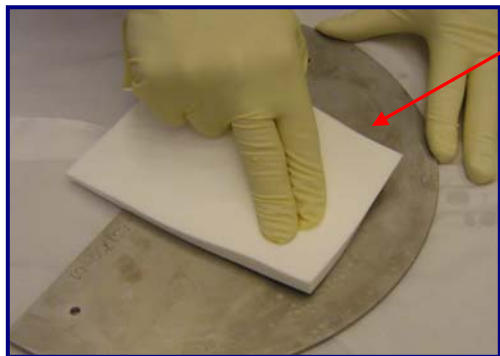
**Fig 7:** Loaded-up UltraSOLV<sup>®</sup> Sponge



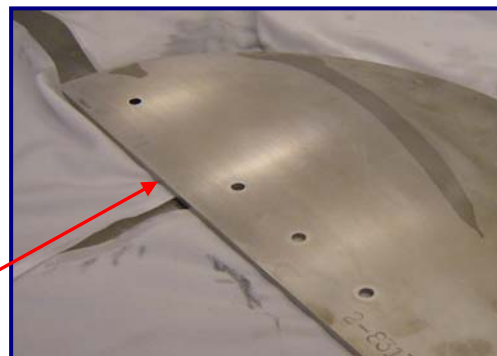
**Fig 8:** UltraSOLV<sup>®</sup> Sponge AFTER rinse

**Step 7:** Using the dampened UltraSOLV<sup>®</sup> 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<sup>®</sup> Sponge wiping Hitachi ETCH part



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

**HITACHI ETCH PARTS PM PROCEDURE (CONT'D):**

**FINAL WIPE PROCEDURE:**

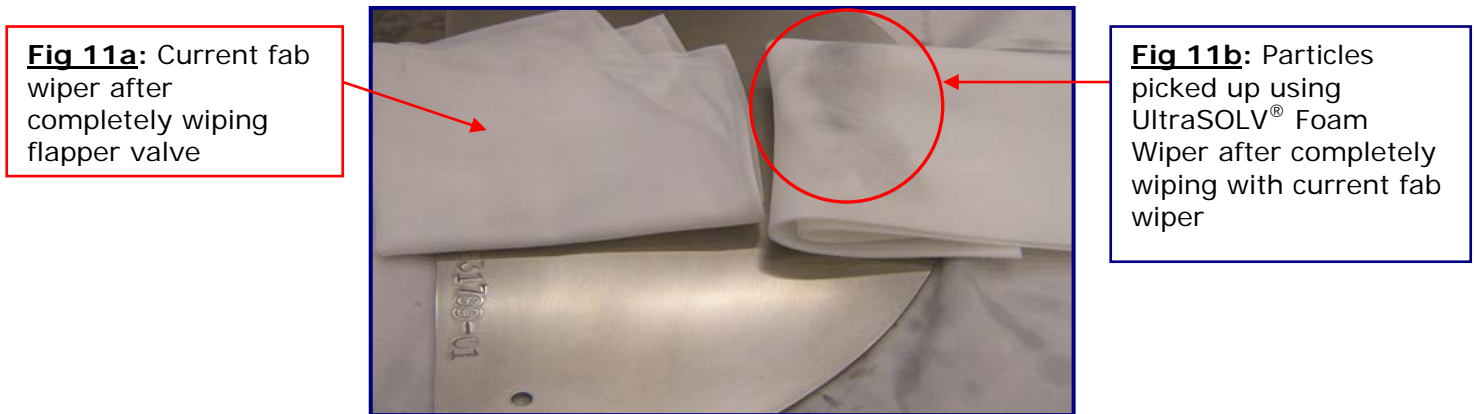
---

**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):**

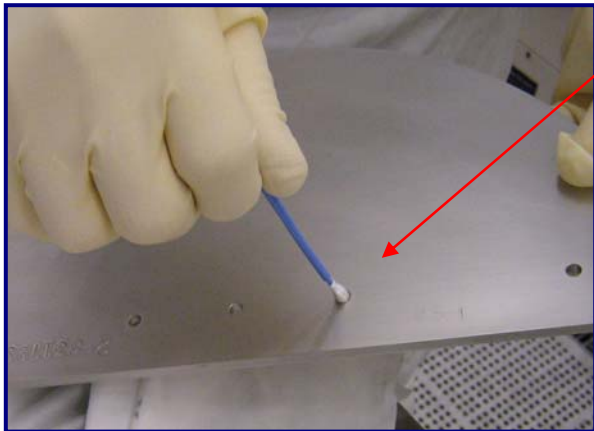
**Step 8:** After scrubbing Hitachi ETCH parts, fold the [HT5790S](#) MiraWIPE® into quarters and dampen with IPA

**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

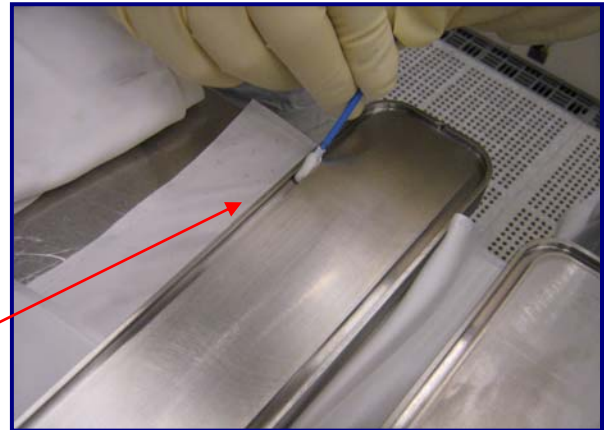
**NOTE:** **REPLACE WITH A NEW DAMPENED MIRAWIPE® AS NECESSARY**

**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