



BEFORE



AFTER

VACUUM CHAMBER PM TECHNIQUE NOVA GSD - HE HIGH ENERGY SOURCE

OBJECTIVE:

TO EFFECTIVELY PM THE NOVA GSD HE HIGH ENERGY SOURCE IN A TIMELY MANNER MINIMIZING TOOL DOWNTIME AND IMPROVING TOOL AVAILABILITY

Vacuum Chamber:

NOVA NV GSD HE HIGH ENERGY IMPLANTER

Vacuum Chamber Process Residue:

PROCESSED INDUCED RESIDUE

Vacuum Chamber Components:

SOURCE

Old Procedure:

Using Scotch-Brite[®], DI water, ethanol & 100+ wipes
Not able to effectively clean source in a timely manner

Recovery time: 4 to 6 Hours

New Procedure:

30 minutes using Foamtec International products with
DI water

Recovery time: 1 to 2 hours

Vacuum Chamber Products:

GSD HE SOURCE CHAMBER PM

PM Kit P/N: [HT4500 – NOVA1](#)

- (2) [HT4536D](#)-10-1 360 Grit Diamond ScrubPAD
- (1) [FTPEN](#)-1 ScrubWRIGHT™ PEN
- (1) [HT4536DW](#)-1 360 Grit Diamond ScrubBELT®
- (1) [HT4754](#) UltraSOLV® Sponge
- (1) [HT4790](#)-5 UltraSOLV® Foam Wipers
- (1) [HT1511FC](#)-10 MiraSWABS® (10 swabs)
- (1) [HT5790S](#)-25 MiraWIPES® (25 MiraWIPES®)



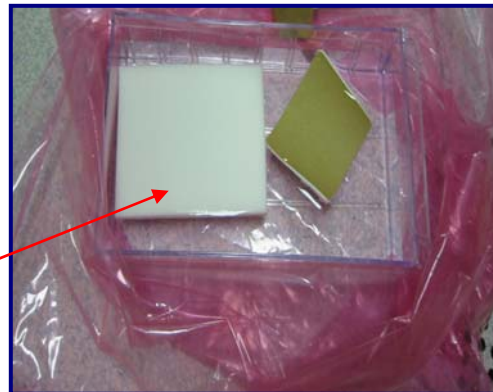
NOVA NV GSD HE SOURCE PM PROCEDURE:

Step 1: Using proper procedures and **safety guidelines**, properly prepare GSD HE High Energy Source for wet clean

Step 2: Stage a small container of DI water over a protective plastic sheet next to the GSD Source Chamber

Step 3: Place [HT4754](#) UltraSOLV[®] Sponge and ScrubPAD in container of DI water to moisten products (See Fig 1)

Fig 1: Foamtec International products in small container of DI water over plastic sheet



Step 4: Take dampened UltraSOLV[®] Sponge and pre-wipe GSD source, removing any loose deposition or flakes. Continue to re-moisten the UltraSOLV[®] Sponge in container of DI water as necessary (See Fig 2)

Fig 2: Foamtec International UltraSOLV[®] Sponge pre-wiping GSD Source



NOVA NV GSD HE SOURCE PM PROCEDURE (CONT'D):

Step 5: Use dampened 360 Grit Diamond ScrubPAD and scrub GSD source chamber (See Fig 3 & 4)

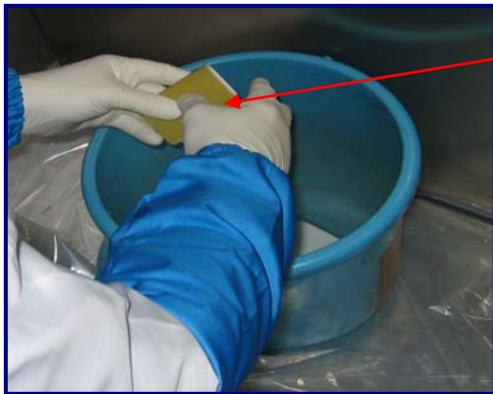
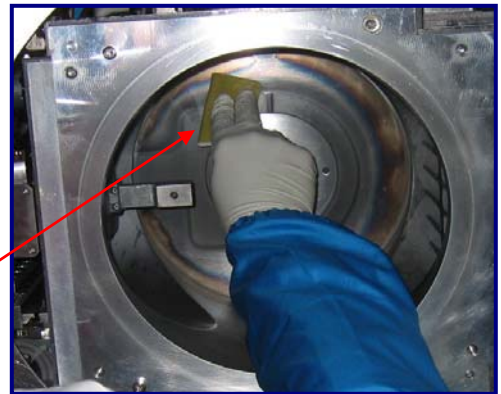


Fig 3: Dampened 360 Grit ScrubPAD

Fig 4: Scrubbing GSD Source Chamber with ScrubPAD



Step 6: As loose deposition begins to build up within the GSD source chamber, use dampened UltraSOLV[®] Sponge to wipe the area free of deposition (See Fig 5 & 6)

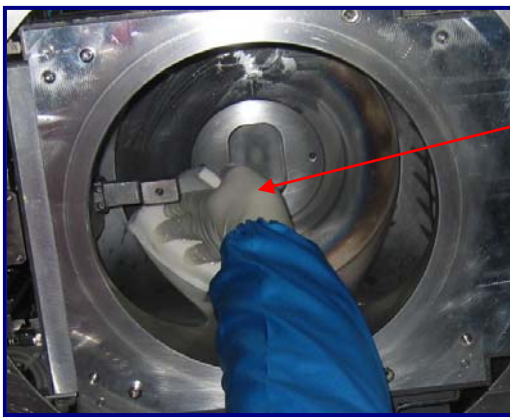


Fig 5: Dampened UltraSOLV[®] Sponge preparing to wipe chamber

Fig 6: UltraSOLV[®] Sponge used to wipe out loosened deposition



Step 7: When placing UltraSOLV[®] Sponge in DI water, always **RINSE-OUT** as much deposition as possible from sponge (See Fig 7 & 8)

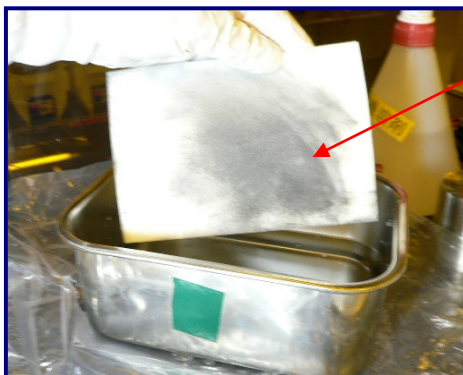


Fig 7: Loaded UltraSOLV[®] Sponge

Fig 8: UltraSOLV[®] Sponge AFTER



NOVA NV GSD HE SOURCE PM PROCEDURE (CONT'D):

Step 8: As ScrubPAD loads up with deposition, pull ScrubPAD across a damp UltraSOLV® Sponge to unload ScrubPAD (See Fig 9, 10 & 11)

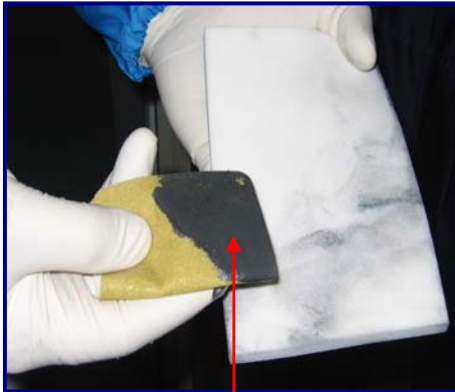


Fig 9: ScrubPAD loaded with deposition

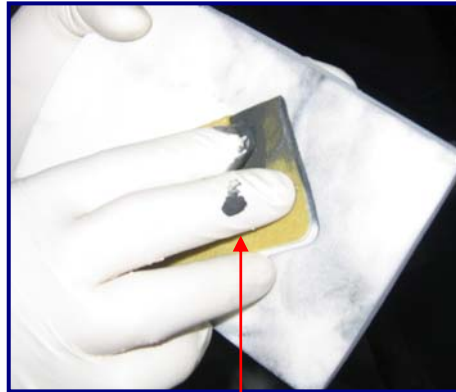


Fig 10: Pull ScrubPAD across a damp UltraSOLV® Sponge

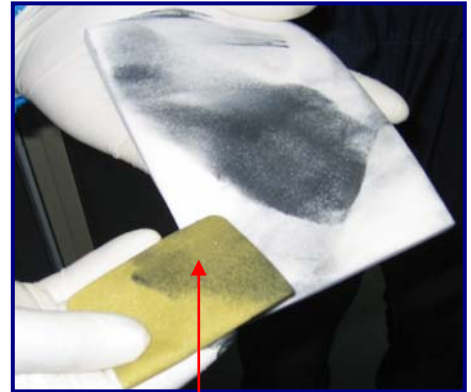
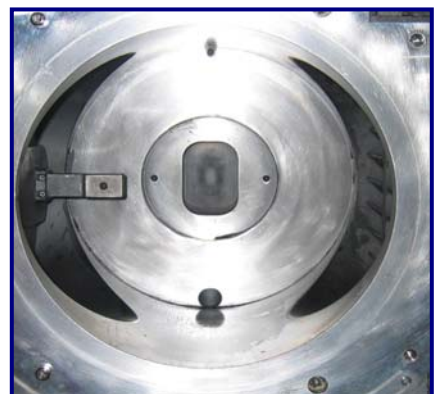
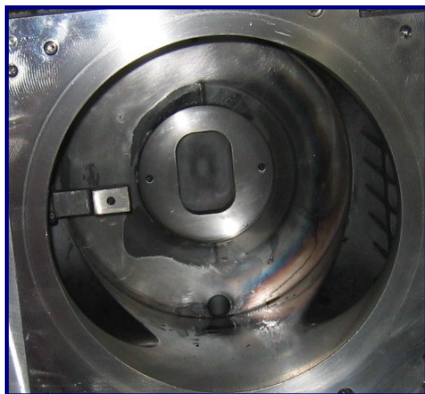


Fig 11: Unloaded ScrubPAD

NOTE: REMEMBER TO UNLOAD UltraSOLV® SPONGE WHEN IT BECOMES LOADED WITH DEPOSITION BY RINSING SPONGE IN CONTAINER OF DI WATER

Step 9: Repeat steps 5 – 8, scrubbing the remaining areas of the GSD source chamber (See Fig 12 – 16)



NOVA NV GSD HE SOURCE PM PROCEDURE (CONT'D):

Step 10: When the scrub is complete on GSD source chamber using the ScrubPAD, take ScrubWRIGHT™ PEN and gently scrub off the deposition from the hard to reach areas and corners throughout GSD source chamber (See Fig 17)

Fig 17: ScrubWRIGHT™ Pen scrubbing corners in source chamber



NOTE: ENSURE TO ROTATE ScrubBELT® ON ScrubWRIGHT™ PEN AS THE ScrubBELT® BEGINS TO WEAR AGAINST THE TIP OF THE PEN

Step 11: When deposition has been completely removed throughout entire chamber, scrub the areas where the ScrubWRIGHT™ Pen was used with Diamond ScrubPAD for final polish of chamber

Step 12: Replace DI water in container with fresh DI water

Step 13: Rinse UltraSOLV® Sponge in container of fresh DI water and wipe out entire source chamber in preparation for Final Chamber Wipe Down

Step 14: Take the vacuum approved for implant use and vacuum the moisture from within the source chamber concentrating on the tight corners and screw ports where DI water may have accumulated (See Fig 18)



VERY IMPORTANT STEP TO HELP WITH TOOL RECOVERY

Fig 18: Vacuuming moisture from tight corners throughout source chamber

NOVA NV GSD HE SOURCE PM PROCEDURE (CONT'D):

FINAL WIPE PROCEDURE:

IMPORTANT NOTE

IN ORDER TO ACHIEVE A FOAMTEC INTERNATIONAL TOOL RECOVERY, THE FINAL WIPE PROCEDURE MUST BE FOLLOWED USING THE FOAMTEC INTERNATIONAL PRODUCTS!!



CHARACTERISTICS OF MiraWIPE® AND UltraSOLV® FOAM WIPERS HELP PROVIDE A CLEANER CHAMBER HELPING WITH TOOL RECOVERY

Fig 19: Foamtec International products used for **FINAL WIPE PROCEDURE**

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 the most **CRITICAL STEP** of the PM procedure (See Fig 20a & 20b)

Fig 20a: Technician wiped out entire source chamber with fab wiper



Fig 20b: Mirawipe® was able to remove much more deposition left within chamber

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

NOVA NV GSD HE SOURCE PM PROCEDURE (CONT'D):

Step 15: Take [HT5790S](#) MiraWIPES[®] and fold into quarters, apply IPA (or recommended final wipe solvent) and wipe out entire GSD source chamber. Refold MiraWIPE[®] as necessary, exposing a clean surface of the MiraWIPE[®] while wiping out source chamber (See Fig 21)

Fig 21: MiraWIPE[®] folded in ¼'s with IPA



NOTE: IT IS IMPORTANT TO CONTINUE WIPING OUT CHAMBER UNTIL NO MORE VISIBLE DEPOSITION CAN BE SEEN ON THE MiraWIPE[®]

Step 16: Take [HT1511FC](#) MiraSWABS[®], apply IPA (or recommended final wipe solvent) and wipe out the tight corners and holes throughout source chamber (See Fig 22)



Fig 22: MiraSWAB[®] wiping corners in source chamber

NOVA NV GSD HE SOURCE PM PROCEDURE (CONT'D):

SOURCE PARTS WIPE DOWN:

Step 17: Use [HT4790](#) UltraSOLV® Foam Wipers and wipe down all bead-blasted parts to be returned back into source chamber (See Fig 23 & 24)

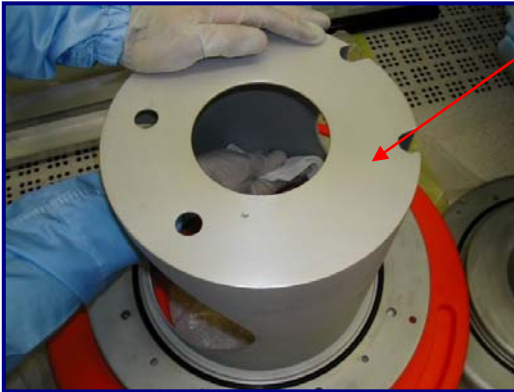
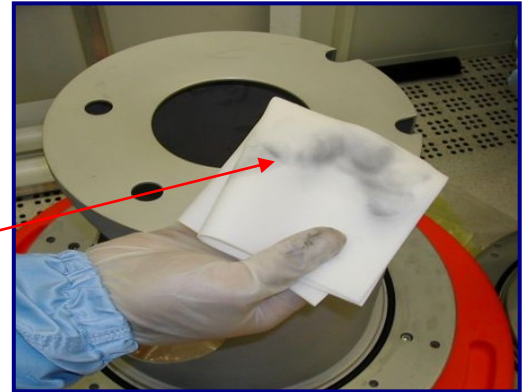


Fig 23: Clean source liner from parts clean

Fig 24: UltraSOLV® Foam Wiper removes more deposition



Step 18: Take remaining MiraWIPES®, dampen with IPA (or recommended final wipe solvent) and wipe all the remaining parts that **are not bead blasted**, prior to being placed back into GSD source chamber

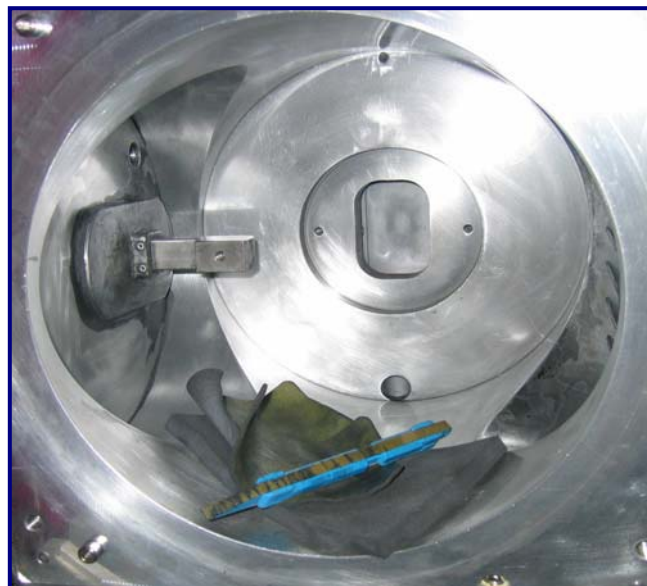


Fig 25: WASTE ACCUMULATED