Foamtec International
Wilshire Contamination Control Division
cleaning critical surfaces

FOAMTEC INTERNATIONAL WCC VALUE ANALYSIS
LAM 9600/4600 METAL ETCH PM

LAM 9600/4600 METAL ETCH PM	**FOAMTEC INTL WCC METHOD**	**STANDARD METHOD**
REQUIRED PARTS	(1) HT4528D-10-1 ScrubPAD 280 Grit Diamond @ $21.10/pc (1) HT4754 UltraSOLV® Sponge @ $3.94/pc (25) HT5790S MiraWIPE® @ $0.58/pc = **$14.50** **TOTAL COST = $39.54/PM**	(6) Pads Of ScotchBrite @ $1.20/pc = **$12.20** (150+) Standard Fab Wipes @ $0.32/pc* = **$48.00** **TOTAL COST = $55.20**
INCREASED TOOL AVAILABILITY	Total Scrub Time – **2.0 Hrs** MTTC ↓	Total Scrub Time – **>8 Hrs**
WASTE REMOVAL COST	 Total Accumulated Waste	 Total Accumulated Waste
TOTAL COST PM PERFORMED EVERY 250 RF HOURS	Assume: **30 LAM Etch Chambers** PM every 300 RF Hrs (3.0) Weeks) MTBC – **$20,560 Total Cost/YR** **1040 Total Hours Tool DownTime/YR**	Assume: **30 LAM Etch Chambers** PM every 250 RF Hrs (2.5) Weeks) **$34,444 Total Cost/YR** **4992 Total Hours Tool DownTime/YR**

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LAM 9600/4600 METAL ETCH PM

Vacuum Chamber:	LAM 9600/4600 Metal Etch
Vacuum Chamber Process Residue:	Process Induced Residue
Vacuum Chamber Components:	Chamber Walls, Slit Valve, Transition Manifold

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OBJECTIVE:

To demonstrate how the Foamtec International PM Technique will properly clean the LAM 9600 & 4600 METAL ETCH more effectively, and in less time - providing a SIGNIFICANT reduction in operating cost

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CURRENT METHOD

Products Used:
- **(6) Pads of ScotchBrite®**
- **(150) Standard Fab Wipers**

Clean Time: **>8 Hrs**
Technicians: **One technician completes entire clean**
Recovery Time: **TBD**

FOAMTEC INTERNATIONAL WCC ULTRASOLV® CHAMBER CLEANING TECHNIQUE

Vacuum Chamber Products Used:
- **(2) HT4536D 360 Diamond Grit ScrubPAD**
- **(1) HT4580D 800 Diamond Grit ScrubPAD**
- **(1) HT4754 UltraSOLV® Sponge**
- **(25) HT5790S MiraWIPES®**
  - **(25) Dampened with IPA used for Final Wipe**

Clean Time: **2.5 Hrs**
Technicians: **One technician completes entire clean**
Recovery Time: **TBD**

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CURRENT METHOD

Technicians pre soak an abundance of fab wipers with DI water and place throughout chamber to pre soak ETCH Chamber for 30 minutes to 1 hour.

Technician uses multiple red, or green, ScotchBrite® abrasive pads to remove metal ETCH deposition from chamber. Using ScotchBrite®, the scrub portion usually takes over 8 hours to complete

Using ScotchBrite®, leads to particle problems and tool recovery issues based on the shedding of fibers and metal contaminants associated with using ScotchBrite® in critical vacuum chambers.

During Scrub portion of PM, technician continually wipes the chamber area with an abundance of fab wipers to remove deposition. This generates a significant amount of hazardous waste.

Upon completion of scrub portion of PM, technician will perform a final IPA wipe down using standard fab wipers. Standard fab wipers are significantly less effective in removing the micron level deposition from the chamber than the Foamtec International HT5790S MiraWIPE®. This can lead to extended tool recovery times, particle failures and excessive seasoning runs.

CONCLUSION:

The current pm procedure uses over 6 pads of ScotchBrite® and 150+ standard fab wipers, with a total PM scrub time over 8 hours. This current procedure is inefficient and causes tool recovery problems and poor tool performance.

FOAMTEC INTERNATIONAL WCC ULTRASOLV® CHAMBER CLEANING TECHNIQUE

SEQUENCE OF EVENTS:

Technician able to soak the Foamtec HT4754 UltraSOLV® Sponge with DI water and perform an INITIAL WIPE of the chamber - saving TIME and reducing WASTE by eliminating the pre soak requirement. Completed in less than 10 minutes.

Using (1) Foamtec International Diamond ScrubPAD, technician is able to effectively scrub entire ETCH chamber in 2 hours helping reduce tool downtime.

During the scrub portion of PM the technician is able to use the Foamtec International HT4754 UltraSOLV® Sponge to wipe down chamber, eliminating the use of excessive fab wipes, helping reduce the amount of hazardous waste.

One Diamond ScrubPAD will complete scrub portion of PM in less time, without generating fibers or metal contaminants. One UltraSOLV® Sponge used to wipe chamber during scrub portion of PM.

Upon completion of PM, technician able to effectively wipe out ETCH Chamber using less than 25 MiraWIPES® and is able to provide a much cleaner ETCH Chamber.

NOTE: THIS LAST STEP IS A VERY CRITICAL STEP TO ENSURE LAM 9600/4600 METAL ETCH RECOVERS FROM PM IN THE MOST EFFICIENT MANNER, MINIMIZING PUMPDOWN TIME AND REDUCING PARTICLES.

Improving Tool Recovery Time
Improving Tool Performance
Reducing Hazardous Waste

CONCLUSION:

The Foamtec International Cleaning Technique uses (1) Diamond ScrubPAD, (1) UltraSOLV® Sponge and (25) MiraWIPES®, and completes an effective scrub in less than 2.0 total hourrs. Results have varied, but in every case there has been an increase in MTBC (Mean Time Between Cleans) by improving tool performance. (An increase of 50rf hours between PM's in some cases).