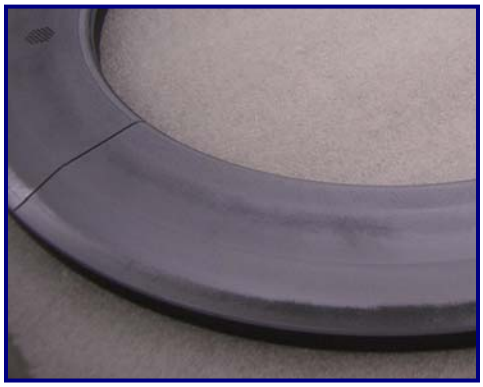


AFTER SCOTCHBRITE

Foamtec International
Wilshire Contamination Control Division
cleaning critical surfaces

AFTER DIAMOND SCRUBPAD

VACUUM CHAMBER PM TECHNIQUE
LAM 2300 EXELAN FLEX
OXIDE ETCH GRAPHITE ELECTRODE

OBJECTIVE:

TO EFFECTIVELY PM THE LAM OXIDE ETCH GRAPHITE ELECTRODE IN A TIMELY MANNER, WHILE HELPING TO IMPROVE TOOL RECOVERY AND REDUCE PARTICLE PROBLEMS ASSOCIATED WITH TRYING TO CLEAN WITH SCOTCHBRITE

Vacuum Chamber: LAM 2300 EXELAN FLEX OXIDE ETCH
Vacuum Chamber Process Residue: PROCESS INDUCED RESIDUE
Vacuum Chamber Components: GRAPHITE ELECTRODE

Old Procedure:
1+ hours using ScotchBrite® & DI water
Recovery time: Varies with particle issues
Interval: PM graphite electrode on every LAM OXIDE ETCH PM every two weeks

New Procedure:
<30 Minutes using Diamond ScrubPADS & DI water
ABLE TO REMOVE MUCH MORE DEPOSITION BUILDUP WITH DIAMOND SCRUBPADS
RECOVERY TIME: Improved recovery time with particle reduction

Vacuum Chamber Products:

LAM 2300 OXIDE ETCH GRAPHITE ELECTRODE PM Kit
PM Kit P/N: HT4500-LAMEL1

- (1) HT4514D-10-1 140 Grit Diamond ScrubPAD
- (1) HT4528D-10-1 280 Grit Diamond ScrubPAD
- (1) HT4536D-10-1 360 Grit Diamond ScrubPAD
- (1) HT4790-5 UltraSOLV® Foam Wiper

LAM 2300 EXELAN GRAPHITE ELECTRODE PM PROCEDURE:

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

Step 1: Using proper procedures and **safety** guidelines and remove LAM OXIDE ETCH Graphite Electrode from ETCH chamber and prepare for PM

Step 2: Place outer electrode onto a wet clean workbench (See Fig 1)

Fig 1: Outer electrode on wet clean bench

Step 3: Take 140 Grit Diamond ScrubPAD and moisten with DI water

Step 4: Moisten the top of the electrode with DI water and scrub off the deposition from the electrode (See Fig 2 & 3)

Fig 2 & 3: 140 Grit Diamond ScrubPAD cleaning off top of electrode

LAM 2300 EXELAN GRAPHITE ELECTRODE PM PROCEDURE (CONT'D):

Step 5: In conjunction with using the Grit Diamond ScrubPAD, continue to rinse off the electrode with DI water (See Fig 4)

Fig 4: Rinsing off the electrode with DI water

Step 6: Continue to rinse off the Grit Diamond ScrubPAD as it loads up with deposition (See Fig 5 & 6)

Fig 5: ScrubPAD loaded up with deposition

Fig 6: Rinsing off ScrubPAD with DI water

Step 7: Continue to scrub the entire front side of the graphite electrode with the 140 Grit Diamond ScrubPAD

Step 8: After completely scrubbing entire front side of the graphite electrode with the 140 Grit Diamond ScrubPAD, using the same technique described above, repeat steps 3 – 7 using the 280 Grit Diamond ScrubPAD

Step 9: After scrubbing entire front side of the graphite electrode with the 280 Grit Diamond ScrubPAD, using the same technique described above, repeat steps 3 – 7 using the 360 Grit Diamond ScrubPAD

LAM 2300 EXELAN GRAPHITE ELECTRODE PM PROCEDURE (CONT'D):

NOTE: **EACH GRIT DIAMOND ScrubPAD WILL PROVIDE A FINER POLISHED LOOK TO THE ELECTRODE, HELPING RETURN THE ELECTRODE BACK TO A NEWER CONDITION (See Fig 7)**

Fig 7: A completely scrubbed electrode

Step 10: After completely scrubbing the outer electrode, take the HT4790 UltraSOLV® Foam Wiper and pull across the entire electrode to help remove any loosely embedded deposition within the electrode

NOTE: **DO NOT USE MORE THAN 2 ULTRASOLV® FOAM WIPERS** (See Fig 8)

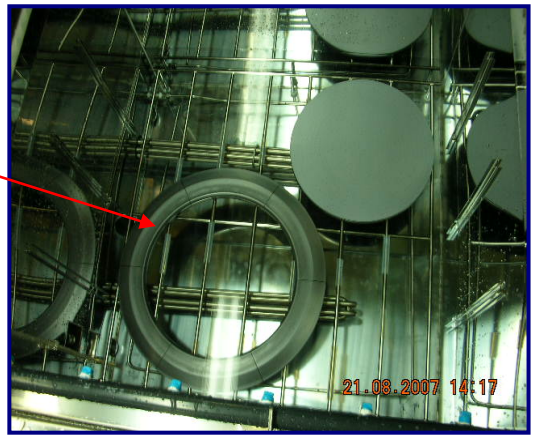
Fig 8: Pulling the UltraSOLV® Foam Wiper across the electrode

NOTE: **THE UltraSOLV® FOAM WIPER IS AN IMPORTANT STEP TO HELP REMOVE LOOSE PARTICLES THAT ARE DEEP WITHIN THE OUTER ELECTRODE**

LAM 2300 EXELAN GRAPHITE ELECTRODE PM PROCEDURE (CONT'D):

Step 11: Place the outer electrode in Ultrasonic Sink to help rinse the part effectively (See Fig 9)

Fig 9: Outer electrode in Ultrasonic Sink



Step 12: Place the outer electrode in oven and bake out moisture to help reduce outgassing

Step 13: After baking the inner and outer electrode in oven and prior to placing back into LAM OXIDE ETCH Chamber, wipe the graphite on the backside of the electrode with the remaining **dry** UltraSOLV® Foam Wipers (See Fig 10 & 11)

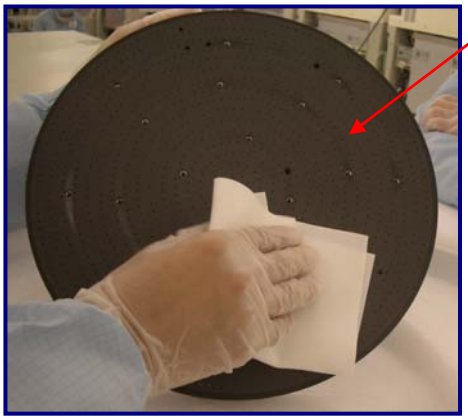
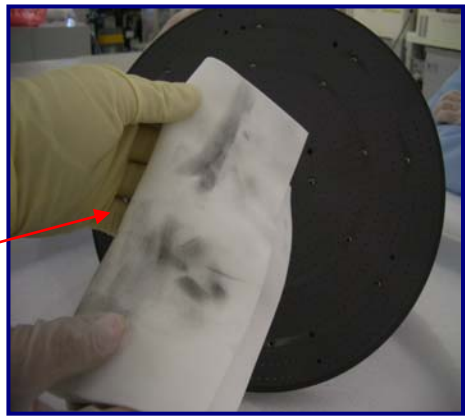


Fig 10: Wiping graphite on backside of electrode with **dry** UltraSOLV® Foam Wiper

Fig 11: Particles removed by UltraSOLV® Foam Wiper AFTER soaking in Ultrasonic Sink



NOTE: **TO ENSURE BEST RECOVERY RESULTS, RECOMMEND USING FOAMTEC INTERNATIONAL WCC CLEANING TECHNIQUE FOR REMAINDER OF LAM 2300 OXIDE ETCH CHAMBER PM**

- **USE IPA WITH MiraWIPES® AND MiraSWABS® AND WIPE DOWN REMAINING CHAMBER PARTS AND CHAMBER BODY**
- **FOLLOW APPLICATION NOTE FOR CLEANING HOT PLATE ASSEMBLY**

Step 14: Using LAM approved procedures, return graphite electrode back to LAM OXIDE ETCH Chamber and return tool back to production