

TePla Plasma Asher



PR Asher

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1. General Description

1. The TePla 100-E machine is a plasma etcher. It uses O₂ to ash organic contaminants.
2. When running an oxygen plasma, the plasma should be a very light blue, almost white.

2. Operating Instructions

1. Turning on the necessary equipment in the supporting area
 1. The process gas is oxygen (O₂). The oxygen tank is located in the supporting area back of the darkroom module. Turn it on with the valve on the top of the cylinder.
 2. Turn on the low pressure N₂ supply for venting
 3. The vacuum pump for the asher can be switched on and off with the switch on the pump beside the N₂ distribution station.
2. Inside the cleanroom
 1. Turn on the "MAIN POWER" switch in the lower-right corner, STOP/READY indicators are ON.
 2. Press "VENT" and open "Gas2" N₂ needle valve slowly to vent the chamber. When done, close the valve by pressing "VENT" again and open the chamber by lifting the lid.
 3. Load your wafers on the quartz hanger with wafer surface facing upwards.
 4. Clean the O-ring with methanol wiping, close the chamber
 5. Close the lid and open the vacuum valve very slowly. If you open the valve too quickly, your wafer will slide around on the plate.
 6. Press "Vac" to achieve pressure below 0.2 Torr.
 7. Set timer, depending on the material, from 0.5 to 10 seconds.
 8. Press "Gas1" to introduce O₂ and adjust valve to get pressure within 0.8-1.2 Torr for ashing
 9. Press "START" to ignite the plasma, the time counts down. Maximum power is 300W. Press "STOP" to cancel the process at any time.
 10. Press "Illumination" to light up the chamber.
 11. Press "Gas1" again when the process is done to stop O₂ flowing in
 12. Press "Vac" to shut the valve for vacuum pumping
 13. Press "VENT", open "Gas2" to let N₂ purge into the chamber
 14. Once the purge is done, shut the valve and press "Gas2" again
 15. Open the chamber to unload the wafer (Repeat steps #3 to 15 if more samples need to be processed)
 16. Close the chamber

17. Turn "Main Power" off
18. Turn off O₂ and N₂ supply
19. Turn off the pump

3. Etch Rates (to be confirmed)

1. For AZ 3330:
 1. 200 W, 1 Torr O₂ pressure : 270 nm/min
 2. 150 W, 1 Torr O₂ pressure : 230 nm/min
 3. 100 W, 1 Torr O₂ pressure : 150 nm/min
2. For SU-8:
 1. 200 W, 1 Torr O₂ pressure : 300 nm/min