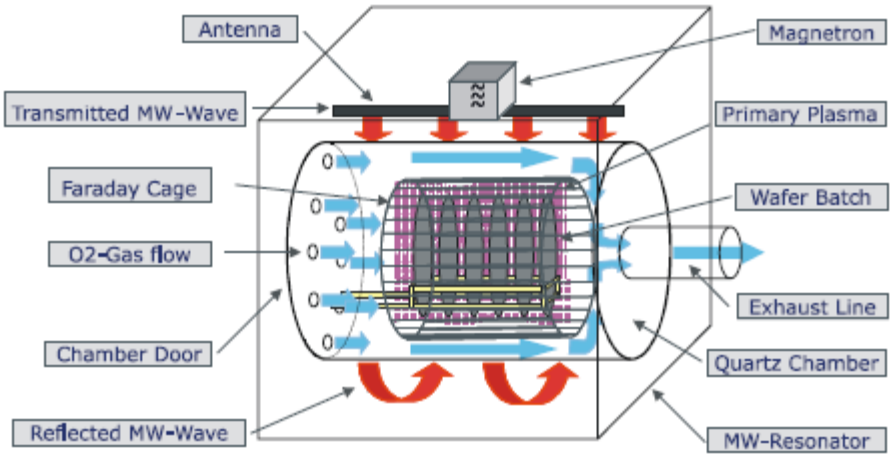
PVA TePla 300
Microwave Plasma System
Users Manual

Coral name: Microwave Asher
Model: PVA Tepla 300
Location: Nanofab, Building 215, Room B106
Contact: nanofab_dryetch@nist.gov
Version: 1.0

OVERVIEW:



TePla300 chamber schematic with Faraday cage:

Gases: O_2, Ar, N_2 and CF_4

Frequency: 2.45 GHz

Power Output: 0-1000 Watt

APPLICATIONS:

- Photoresist stripping
- Surface cleaning after storage
- Surface cleaning after the processes (photolithography, wet etching dry etching)
- Removal of organic passivating layers and masks
- Resist Descum process

SPECIAL NOTES OR RESTRICTIONS:

- Must be qualified to use tool by super-user.
- No Cr or other metals in the chamber.

SAFETY PRECAUTIONS:

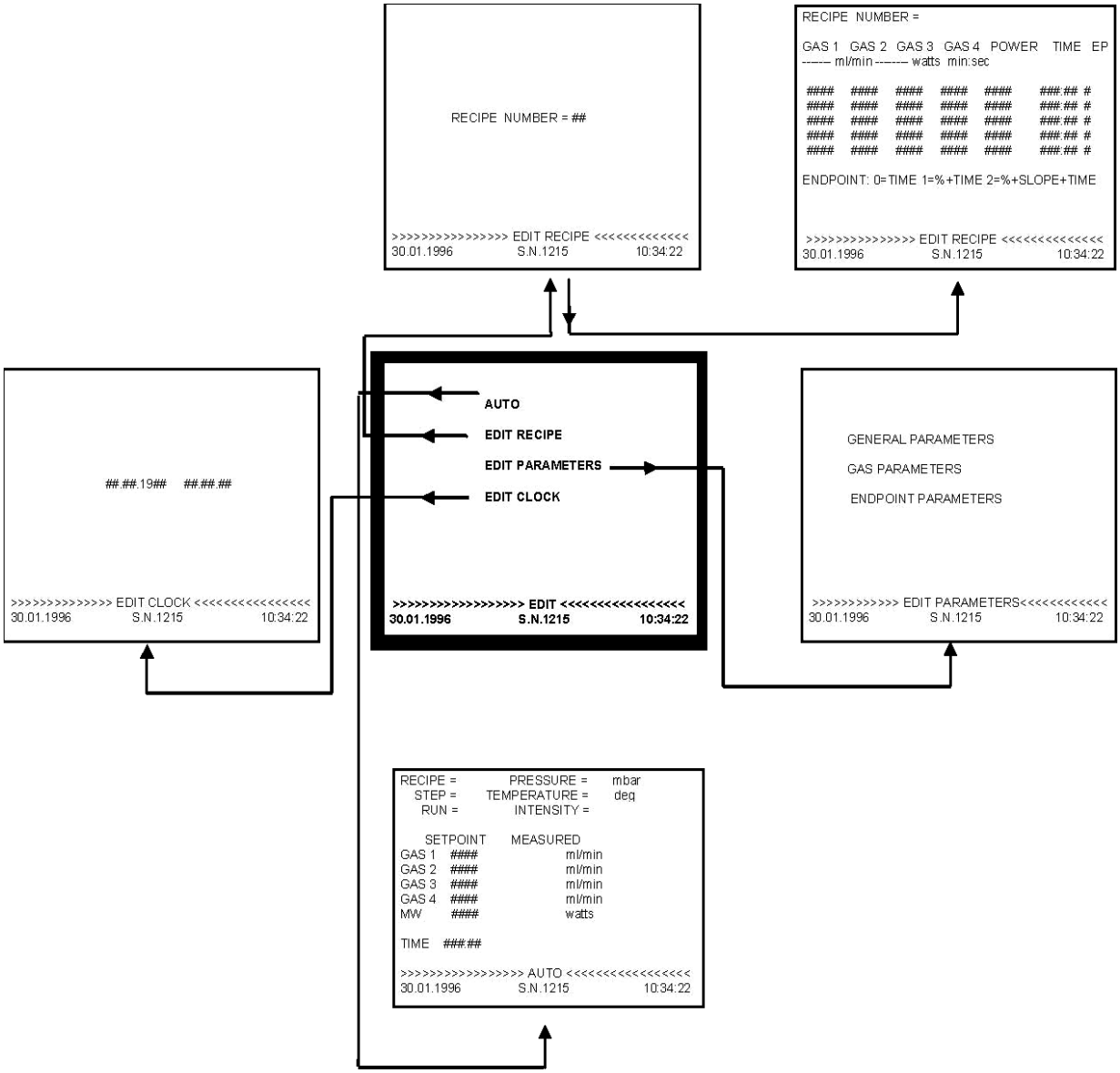
To avoid contamination these practices must be followed

- Never touch any part inside the chamber or part going into the chamber with bare hands or contaminated gloves.
- Handle samples going into the chamber with gloves and/or tweezers.
- Do not load the substrates with exposed Cr or other metal coating or structures into the chamber.
- Keep the chamber in vacuum after the process, especially overnight.
- Never leave a dirty chamber for the next user. If your process leaves any flaky or colored deposits on the cage or chamber wall, clean them after you have finished. Use solvents or plasma; in bad cases you may have to take the cage out of the chamber for the cleaning.
- Emergency shut off: In the event of an emergency, shut off the system power with the emergency power off button on the front of the system.

OPERATION:

- Make sure the “emergency stop” switch is unlocked.
- Turn the “main power” circuit breaker ON (to the right)
- Press system button “I”. and wait until the computer turns on, the fan runs and the system is initialized.
- If the machine is “ON” and in the “Idle” state, press “Abort” to vent the chamber.
- Open the chamber and load sample(s).

- Close the chamber and press “Enter” to get into the main menu (center frame).
- Choose “Edit Recipe” (Do not Edit Parameters and Edit Clock!).
- Input the recipe number (1-4 are reserved for the standard processes, users start from number 5)
- Press “Enter” to get into recipe window (as shown on up right).
- Up to 100 programs of 5 steps each can be entered.
- Use arrow and number keys on the control panel to move and input the



parameters (see example below).

- Gas 1: N2; Gas 2: CF4; Gas 3: Ar (to be installed); Gas 4: O2
- Press “Enter” to save the recipe and return to the main menu.
- Press “Auto” to select the edited recipes.
- Double check the process in the recipe before start.
- Push the door and press “Start” on the control panel to start the process.
- Once the process finish, the chamber will be vented automatically.
- Wait for at least 2 minutes to cool down the wafer.

0010 0020 0030 0040 0600 010:00 0 0020 0000 0000 0050 0450 000:00 1 0000 0075 0035 0000 0600 005:00 1 0000 0085 0045 0000 0500 000:00 2 0010 0080 0020 0000 0000 001:00 2

- Open the door and unload the sample.

END STEP:

- Press the “Idle” bottom to leave the tool in the vacuum.
- Sign the log book.

Reference Recipes

Recipe 1	***Photoresist stripping***	
	Step 1	
	Working pressure	0,8 mbar
	Process gases (sccm)	600 oxygen
	µ-wave-power	500 Watt
	Process Mode	time 10 min. + 10 min with 700 Watt + application process 3

Recipe 2	***Descum process***	
	Step 1	
	Working pressure	0,6 mbar

Process gases (sccm)	200 nitrogen
µ-wave-power	200 Watt
	time 1,5 min + Step
Process Mode	2
Faraday-cage	yes

Step 2

Working pressure	0,6 mbar
Process gases (sccm)	200 nitrogen + 200 oxygen
µ-wave-power	0 Watt
	time 1,5 min + Step
Process Mode	3
Faraday-cage	yes

Step 3

Working pressure	0,6 mbar
Process gases (sccm)	200 nitrogen + 200 oxygen
µ-wave-power	200 Watt
Process Mode	time 1,5-3 min
Faraday-cage	yes