Tepla 300

Contents

To be read first:

Materials that deteriorate easily upon exposure to oxygen (**Ag, Cu, Cr, Fe, ...**) should not be processed in this machine!
This equipment is **NOT** micro-electronic compatible. For micro-electronic compatibility, please use Oxford PRS900 (zone 2).
Processes that have not been tested are: isotropic etching of glass, ceramic, SiO2, Si3N4, Si.

I. Introduction

The Tepla 300 uses high frequency plasma. Main applications are:

Photo Resist (PR) stripping.
Wafers surface cleaning before subsequent processes.
Enhancement of hydrophilic behavior of plastics surfaces.

II. Equipement description

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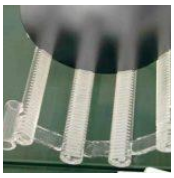

Quartz primary vacuum chamber (dimension: Dint. 245 mm x Prof. 380 mm)
Plasma frequency: *2.45 GHz*
Plasma power: *200 to 1000 W*
Gas : *O2 and CF4 (max. flow 500 ml/min)*
Quartz holders for 25 wafers from 75 mm to 100 mm

III. Standard processes

Resist strip

Positive resists etch rate = 350 nm/min depending on the number of wafers to be processed in the batch.

Search

Program	Gas 1 (O2, ml/min)	Gas 2 (CF4, ml/min)	Power (W)	Time (mm:ss)	EPD (0, 1, 2)	Remarks
01	400	0	500	01:00	1	1 min over-etch after end point detection
02	400	0	500	00:30	0	
03	400	0	500	01:00	0	
04	400	0	500	04:00	0	

Program	Gas 1 (O2, ml/min)	Gas 2 (CF4, ml/min)	Power (W)	Time (mm:ss)	EPD (0, 1, 2)	Remarks
06	400	0	500	10:00	0	
08	400	0	500	20:00	0	
07	500	0	1000	30:00	0	Strip for 25 wafers batch

Si_3N_4 strip

Si3N4 etch rate= 230nm/min epending on the number of wafers to be processed in the batch.
Uniformity: 16%
Selectivity to SiO2: 3.5
Selectivity to resist: < 1 !

Search

Program	Gas 1 (O2, ml/min)	Gas 2 (CF4, ml/min)	Power (W)	Time (mm:ss)	EPD (0, 1, 2)	Remarks
21	35	200	400	00:30	0	
22	35	200	400	00:50	0	
23	35	200	400	01:20	0	

Surface activation

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Program	Gas 1 (O2, ml/min)	Gas 2 (CF4, ml/min)	Power (W)	Time (mm:ss)	EPD (0, 1, 2)	Remarks
10	400	0	1000	01:00	0	
11	400	0	1000	00:30	0	
12	400	0	1000	00:15	0	
13	400	0	750	01:00	0	
14	400	0	750	00:30	0	
15	400	0	750	00:15	0	
16	400	0	600	01:00	0	
17	400	0	600	00:30	0	
18	400	0	600	00:15	0	
25	200	0	100	00:10	0	
26	400	0	500	00:45	0	
27	400	0	500	00:30	0	
28	400	0	500	00:15	0	
29	400	0	500	00:10	0	
30	400	0	500	00:05	0	
35	400	0	350	01:00	0	
36	400	0	350	00:45	0	
37	400	0	350	00:30	0	
38	400	0	350	00:15	0	
39	400	0	350	00:10	0	
40	400	0	350	00:05	0	
41	400	0	150	00:10	0	
42	400	0	200	10:00	0	
43	400	0	200	00:30	0	
44	400	0	200	00:15	0	
45	400	0	200	00:10	0	

Program	Gas 1 (O2, ml/min)	Gas 2 (CF4, ml/min)	Power (W)	Time (mm:ss)	EPD (0, 1, 2)	Remarks

IV. How to use the system

The substrates are processed following this procedure:

1. Login on the Tepla plasma stripper on zone 11 computer.
2. Activate the rectangular green “I” button on the machine
3. The machine is on stand-by mode (“Idle” mode). Kill this mode by pressing the “abort” button
4. Prepare the quartz carrier: CAUTION, it is very fragile! Use the fork to delicately manipulate the carrier.
   Reminder: Materials that deteriorate easily upon exposure to oxygen (**Ag, Cu, Cr, Fe, ...**) should not be processed in this machine!
5. Select the program: press “enter”, use the arrows to make your choice in the menu and press “enter” to validate
   6. programs 1 to 8 : resist
   7. programs 21 to 23: Si3N4
   8. programs 10 to 18 and 25 to 46: surface activation
9. Start the process by pressing “run” (close the door to start the pumping). You can stop the process at anytime by pressing “abort”
10. The chamber returns automatically at atmospheric pressure
11. Take back the quartz carrier (CAUTION, it is hot: delicately use the fork) and your substrates
12. Check the cleanliness of the chamber
13. Put the equipment in stand-by mode: press “enter”, use the arrows to select “idle mode” and press “enter” (close the door to start the pumping)
14. Perform Tepla logout on zone 11 computer

V. Allowed materials

Wafers: Si, glass, Pyrex, without metallic layers if possible.
Plastics foils: Caution, special holder and limited power (material fusion)

VI. Forbidden processes

Processes that use the following equipments:

Zone 3
- All equipments of 3.

Zone 4
- Deposition at temperature higher than room temperature in SPIDER

These processes must use the Oxford PRS900 (zone 2).

In the same section

STS Multiplex ICP

Alcatel AMS 200 SE

SPTS APS

Oxford PRS900

Tepla 300

Tepla GiGAbatch

TEL Unity Me

SPTS Rapier