RTA-NoMetal

STANDARD OPERATING PROCEDURE

CORAL NAME: RTA-NoMetal

Model: ANNEALSYS RTP AS-One 150

What it does: Rapid Thermal Processing

Introduction:
The system is designated for CMOS compatible processing of Silicon, SiGe, Ge wafers according to the Process Technology Committee (PTC) approvals.

The AS-One 150 has the following process capabilities:

It is a cold wall vacuum-enabled chamber, running under Pyrometer or TC Control.
4" and 6" wafers can be processed by direct Pyro control, while smaller
wafers can be processed inside a SiC susceptor.
Pyro control temperature range: 200C -1100C
Thermocouple control temperature range: 100C – 1000C
Maximum ramp up rate on Silicon wafer: 150C/ sec
Maximum ramp up rate on SiC susceptor: 20C/sec
Maximum step duration: varies with the temperature level.
Lamps time life varies with the temperature-time budget values: > 1000 Hours.

Gases: Nitrogen, Oxygen, Forming Gas and Ammonia with maximum flow: 2 SLPM
Can operate at low pressure (a few millitorr).

The AS-ONE 150 RTP runs under recipe control, located in specific
 recipe libraries. The recipes are created upon user request, considering the setup configuration, the limits of operating parameters and the PTC approved processes

Safety:
    -    The Ammonia (NH3) and Forming Gas (5.5%H in 95% N2) MSDSs can be found in the binders located in lab areas & in the Web.
    -    The system has hardware interlocks which forbid mixing Ammonia with air or Oxygen; the same applies to Forming Gas.
    -    Parts inside the chamber can be very hot; avoid direct contact.

Procedure:

1. Engage the RTA-NoMetal machine in Coral.
2. Push the green power on button on the machine panel.
3. Click the "AnnealSoft" icon on the laptop display and login into your account.

4. Click "PROCESS" button at the base of the computer window, and select the recipe
   you plan to use from the dropdown recipes list.
   Click on "Download" button on the top right side of the window.
5. Click on the "Unlock chamber" button, open the process chamber by pushing up
   on the top cap handle, place your wafer inside on the Quartz pins, close down
   the top cap and click on the "Lock chamber" button.
6. Click on "START" button on the right side of the window. A new window will
   pop up with the prompt for the file name and time stamp to save the run data in.
7. Push the new "START" button in the new window to start the process.
8. The system will show a graphic display with real time process parameters, and
   at the end of the run a window will pop up : "Recipe finished successfully" :
   Click "OK" to acknowledge it.
9. Click the "Unlock chamber" button, open the process chamber, take out the wafer,
   close the chamber and click the "Lock chamber" button.
10. You can see the automatically-stored run data by pushing the " Historical"
button
11. Turn off power to the machine by pushing the red button on the front panel, and
    click on the "COM" button on the top right corner of the computer display to
    cancel the alarm, push the "Shut down" button on the right bottom corner of
    the display to close the software application and close the laptop cap.
12. Disengage the machine in "Coral" and add your comments.

Bernard Alamariu   Eric Lim