Tergeo Ashing Protocol

Questions/Problems?
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This protocol includes the use of delicate and sensitive equipment. THE PROTOCOL IS FOR TRAINED USERS ONLY.

Startup Checklist

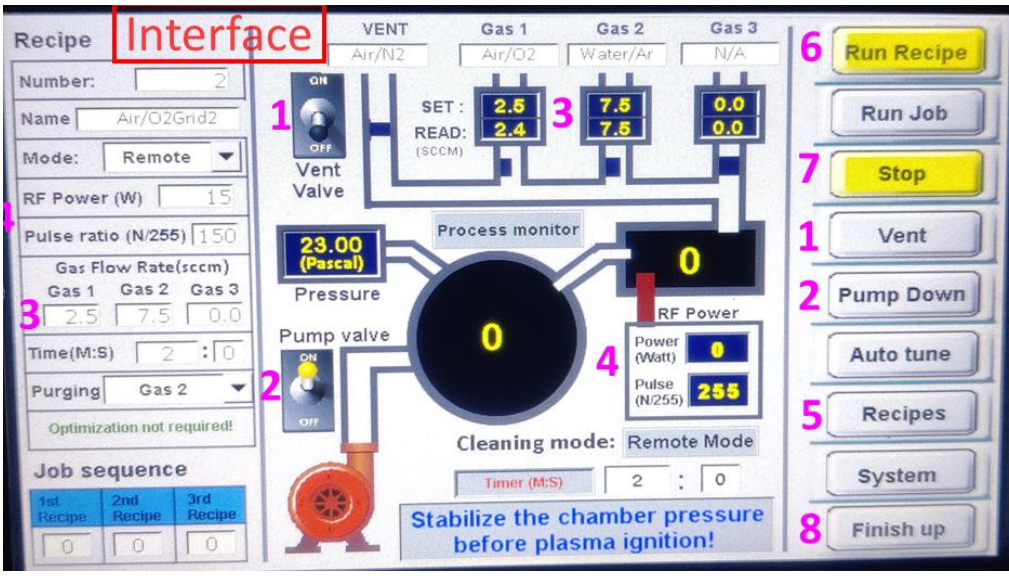
- Check tools and materials
- Check Tergeo log for problems
- Check Tergeo for problems
- Check the Argon, Oxygen, and Nitrogen tanks for problems

Wrap-up Checklist

- Removed any materials from the Tergeo chamber & hit “Finish up” Button
- Turn off power.
- Close the Argon and Nitrogen and tank main valves
- Put away all tools and materials
- Clean up area
- Fill out the logbook

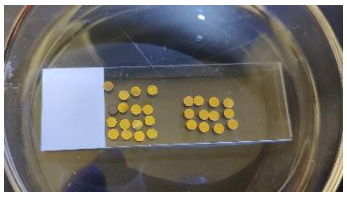
Main Tergeo Protocol

1) Flip grids onto 2nd glass slide
2) Turn Tergeo on
3) Open all 3 gas cylinders
4) Vent the system (1000 mbar)
5) Open the chamber
6) Place grids in chamber & close it
7) Load recipe (#2 for ashing)
8) Run recipe
9) Stop & vent
10) Open the chamber
11) Remove the grids
12) Close the chamber and hit “Finish Up”
13) Logbook & Clean up (close Ar & N_2 tanks, Tergeo)



1. Vent Button / Valve (2)
2. Pump Button / Valve (2)
3. Gas Settings / Readings (2)
4. Power Settings / Readings (2)
5. Select Recipes Button
6. Run Recipe Button
7. Stop Button
8. Finish Up Button

Protocol Details



1) The first thing you will need to do is turn your gold coated grids upside down to expose the carbon side to the plasma for ashing. The easiest method for doing this is to very gently place a 2nd slide on top of the first slide w/ the gold coated grids. Then, very carefully, flip the grid/slide sandwich upside down. Gently lit the top slide slightly and tap the top until all the grids (or at least >90%) are on the bottom side. Take the top slide entirely off. Move slowly and lift straight up to avoid grids flying around from static or air movement. Your grids should now be carbon side up on the 2nd slide. Leave the slide & grids under the glass petri dish (we use glass to minimize static issues w/ plastic).

2) If the system is off then turn it on. The switch is located on the back right bottom of the Tergeo.

3) Open the Argon, Nitrogen, and Oxygen gas tank main valves. Do **NOT** alter the regulator pressure settings or you could damage the Tergeo and ACE600.

4) Vent the Tergeo by hitting the “Vent” (1) button. Hit the “Stop” (7) button once the pressure reaches 1000 mbar.

5) Open the chamber once the system is vented (1000 mbar). Turn the chamber cover to unlatch it then pull it off. Set it aside w/ the O-ring side up to avoid dust and scratches that will harm the system’s vacuum.

6) Place the grid slide(s) in the chamber on the shelf. One can take the shelf out of the chamber to arrange their grids, but be extremely careful not to: scratch it, scratch the quartz tube, or get dust on anything. Close the chamber.

7) Hit the “Recipe” button (5) and select recipe #2 for ashing. Talk to staff if you’d like to use a different recipe or make your own.

8) Hit the “Run Recipe” button (6) to run the recipe. It is automated so you don’t need to do anything else. If the plasma ignites properly, you will see a neo pink color in the chamber. Talk to staff if you don’t see this.

9) Vent the Tergeo by hitting the “Vent” (1) button. Hit the “Stop” (7) button once the pressure reaches 1000 mbar.

10) Open the chamber once the system is vented (1000 mbar). Turn the chamber cover to unlatch it then pull it off. Set it aside w/ the O-ring side up to avoid dust and scratches that will harm the system’s vacuum.

11) Remove the slides and grids. One can take the shelf out of the chamber to remove their grids, but be extremely careful not to: scratch it, scratch the quartz tube, or get dust on anything.

12) Close the chamber. Hit the "Finish up" (8) button which will make the plasma cleaner initiate the evacuation of the sample chamber automatically. After the pressure reaches a stable state, the plasma cleaner will stop the vacuum pump.

13) Close the Argon, Nitrogen, and Oxygen gas tank main valves. Do **NOT** touch the regulator pressure setting valves or you could damage the Tergeo and ACE600. Turn off the Tergeo power. The switch is located on the back right bottom of the Tergeo. Fill out the logbook, clean up everything, etc.

Tools and Materials

- Tergeo
- Gloves
- Gold coated grids
- Tweezers
- Glass slides
- Petri dish

Tergeo Sputtering Protocol

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Main Tergeo Protocol

1) Turn gold coated grids carbon side up
2) Turn Tergeo on
3) Open all 3 gas cylinders
4) Vent the system (1000 mbar)
5) Open the chamber
6) Place grids in chamber & close it
7) Load recipe (#2 for ashing)
8) Run recipe
9) Stop & vent
10) Open the chamber
11) Remove the grids
12) Close the chamber and hit “Finish Up”
13) Logbook & Clean up (close Ar & N2 tanks, Tergeo)