CORAL Name: Asher-Barrel-Thierry

Location: Bay 6U
Purpose: Etch, Resist Strip
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Introduction

The Asher-Barrel-Thierry is an oxygen (O2) plasma asher for etching and removal of organic materials, particularly photoresists and eBeam resists. The Thierry asher uses an 80 kHz RF generator to excite oxygen into a plasma state that reacts with organic materials to form carbon dioxide and water byproducts. The process can be used for bulk removal of resist films (stripping) or for removal of thin, residual layers (descum). The system can accept samples ranging from small pieces up to 200 mm wafers.



Safety

- The ashing process generates heat and the chamber as well as the samples inside may be hot. Use caution when loading and unloading samples to avoid thermal burns.
- The system utilizes high-power RF radiation to generate the plasma. Oxygen plasma generates ultraviolet light. Under normal operation the user is protected from these hazards with the system enclosure and UV-filtered viewing ports. Do not attempt to modify the system, the viewing port or to bypass the system interlocks, otherwise there is risk of exposure.

User Qualifications and Responsibilities

- Users must have a PTC approved process and must be trained and qualified by MIT.nano staff to use this system.
- Users must engage the tool in CORAL and remain engaged for the duration of use.
- Do not put unapproved samples or materials into this system.
- If there is a need for a recipe variation that does not exist, discuss with staff to create a new recipe.
- Oxygen plasma has a light blue color, a shift to pink color indicates nitrogen or water (hydrogen) in the system. Additional pumping or purging may be required. Report plasma issues in CORAL.

- Report any system problems in CORAL for staff to address.

Operating Procedures

1. Reserve and engage the Asher-Barrel-Thierry in CORAL.
2. Open the door to the asher, load your samples, and close the door.
    a. Wafers can be placed into an appropriately sized boat or may be laid flat inside the barrel.
    b. Pieces can be loaded into a quartz plate or dish.
3. Use the stylus to select the program of your choice based on the list in the Appendix.
4. Press the green **START** button. The button will illuminate and the program will begin.
5. At the end of the program, the **START** button will go off, and the red **STOP** button will illuminate.
6. Open the door.
7. The chamber, quartzware holder, and sample will be hot. Use a fabwipe to grasp and remove the holder to unload the chamber. Place the sample holder on the metal table surface to cool.
8. Close the door to the asher.
9. Disengage from CORAL.

Appendix

Standard Recipes

Super Strip ~1200Å/Min	Slow Strip ~120Å/min
Program 8: SuperstripLP2 (2Min, .15mBar)	Program 6: SlowstripHP5 (5Min, 1.0mBar)
Program 1: SuperstripLP10 (10Min, .15mBar)	Program 7: SlowstripHP7 (7Min, 1.0mBar)
Program 2: SuperstripLP15 (15Min, .15mBar)	Program 9: SlowstripHP10 (10Min, 1.0mBar)
Program 3: SuperstripLP30 (30Min, .15mBar)	Program 10: SlowstripHP15 (15Min, 1.0mBar)
Program 5: SuperstripLP60 (60Min, .15mBar)	Program 11: SlowstripHP30 (30Min, 1.0mBar)
	Program 12: SlowstripHP60 (60Min, 1.0mBar)