

Thomas-Wiley Mill Protocol

- A. We have two Thomas-Wiley Intermediate Mills. One located in 304 Olin lab hood and one in 319 Olin lab hood. Enriched samples are ground in 319 and unenriched in 304. If samples will not be analyzed for 15N either grinder can be used. The Wiley Mill can be used successfully for a wide variety of materials. Samples should be free of hard organic matter. Samples continuing excessive moisture or oil cannot be satisfactorily run through the mill since they tend to cling to the walls of the chamber. Be sure to dry samples prior to grinding them.
- B. **Adapters:** There are three types of adapters available in this lab, 20, 40, or 60 mesh. Selection of mesh will depend on coarseness of material needed (For Cardelús Lab we use 40 mesh).
- C. **Operation:**
1. The mill is for grinding plant material only. **No soils!** Supplies are kept in the grinder box.
 2. Make sure the mill is plugged in (Unplug the mill after use) and the vent for the hood is turned on.
 3. Confirm the screen size needed for the particle size desired. Change screens if necessary. The grinder comes with a 20, 40 and 60 mesh screen.
 4. Remove the cover and make sure that the grinder is clean. Inspect the grinding blades, glass cover, screen and channel leading to it. Always begin by wiping the above parts with ethanol to prevent contamination of samples.
 5. Replace the glass cover and make sure clip is secure. **Never open when grinder is running.**
 6. Place a clean dry jar, square receiver, or coin envelope in the space below the grinder mouth. A new, clean jar or receiver should be used for every sample.
 7. Turn on grinder and feed sample in through the cup on the top. Grinding time depends on the amount of sample.
 8. **If samples/treatments are expected to vary** and grouping is not possible, all surfaces must be wiped with ethanol between samples in addition to being brushed and vacuumed. Cross contamination is always a concern, and it's up to the operator to decide how careful they need to be. If this is not adequate a metal spatula may be used to clean out particles around the edge of the grinding blades and screen. All surfaces that come in contact with the sample must be wiped down and vacuumed. Dry air may also be used to clean blade propeller. Samples/treatments should be ground in order of increasing expected concentration whenever possible.
 9. **Following use, the grinder should be left clean and closed.** Repeat inspection of the grinding blades, the glass cover, the cup, the screen, and the channel leading to the screen. Please leave the grinder as clean as you would like to find it. Wipe the hood counter with a damp sponge when you are completely finished.