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## Protocol for Grinding Solid Samples

### Laboratory Equipment and Materials:

Grinding canisters – cup, cap with O-ring, 2 bearings & locking collar

Grinding machine

Scoopula or small spoon

Funnel

Toothbrush

Paper towels

Compressed air supply

### DRY & GRIND

1. Dry samples at 40 C for at least 48 hrs or freeze-dry for at least 24 hours
2. Scoop 1 to 20 g of sample into clean grinding cup with two clean ball bearings; cup should be no more than 2/3 full
3. Place cap with O-ring over the top of the cup and screw locking collar over the cap; collar should be as tight as possible with your hands; loose caps will strip the threads
4. Place 2 sealed canisters (for balance) in grinder holders; first tighten outer knob to hand tightness, then tighten inner locking bolt using a small wrench for leverage if necessary
5. Close grinder bay door, turn on the grinder (switch in back), set timer to 3 minutes and press start; sample should be a uniform fine-grained (flour-like) texture
6. Remove canister- loosen locking nut first, then outer knob
7. Unscrew locking collar and put it in a safe place; it may be damaged if dropped; sample should be a uniform fine-grained (flour-like) texture
8. Transfer ground sample to labelled sample vessel using funnel and scoopula; do not tap the cup or cap on the table



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#### CANNISTER CLEANING

1. Rinse bearings with warm water and scrub with a clean toothbrush; place them on a clean paper towel so they don't roll away
2. Rinse cup with warm water and scrub with a clean toothbrush
3. Rinse cap with warm water and scrub with a clean toothbrush
4. Aluminum locking collar does not need to be washed
5. Towel-dry cup, bearings, and cap
6. Air dry cup, bearings, and cap; you can tell they are completely dry when your hands are also dry

#### GRINDING ROOM MAINTENANCE

1. DAILY:
  - a. Turn off grinder (switch in back)
  - b. When done grinding, make sure all canisters are clean and completely dry; they rust quickly if left wet
  - c. Wipe all surfaces daily with moist paper towels; including table top, grinding bay and lid, and sink counter.
2. WEEKLY: Mop floor with warm water
3. MONTHLY: Soak micro-canisters and bearings in WD40 for a day, followed by warm dish-soap washing and complete drying