Procedures for sieving sediment for charcoal

Keep a log of the hours you worked and the samples you worked on each day in your lab book.

Sampling and sieving

1. Samples should be in numerical order (that is, work your way down the core, starting at 0-1). Be sure to use enough sample volume so that charcoal counts on average are >30 pieces.
2. Place measured sample in a 12 ml (7 dram) vial. Label vial with lake code and depth interval: (for example: MIR I 12-13). Use pre-made labels and use scotch tape to keep label attached.
3. Fill to top with 10% sodium hexametaphosphate (Na-HMP). Soak for 12 hours to several days.
4. Place 250 μm sieve over 125 um sieve. Wash sediment through top sieve as carefully as possible.
5. Save the > 250 μm fraction only if there are large pieces of plant material (macrofossils) that can be identifiable. For example, save anything that looks like wood > 5 mm in size, a piece of a conifer needle, large seeds, etc. Save material in a new 7 ml plastic vial and label it with the same label, but add ">250 μm". If there is nothing large on the 250 μm screen, then do not make a vial. Ask someone in the lab if you are not sure that you have an identifiable macrofossil.
6. Quickly wash sediment through the 125 μm sieve. This does not need to be completely washed through, because you will use this sieve again. Return the 125–250 μm fraction to the 12 ml vial.

   - Use a small glass beaker around vial in case of spills.

Hydrogen peroxide treatment

7. Let material settle in vial. Suck off extra water with a glass pipet. Be careful not to remove any sediment. It is OK to reuse the same pipet for different samples. Be sure nothing is sticking to the inside of the pipet before going to the next sample.
8. Fill vial with 3% hydrogen peroxide and cap loosely. Let sit for ~12 hours. Wear gloves to prevent bleaching your skin!
9. To stop reaction, sieve sample through 125 μm screen once more. Rinse vial and place sample back into vial.

Count charcoal fragments under stereoscope in a Bogorov counting tray.

Notes on chemicals:

Sodium hexametaphosphate (Na-HMP).

This is just a phosphate water softener. Calgon used to be made of this, but not since phosphates were determined bad for the environment when released in large quantities.

- Mix Na-HMP crystals in warm water in a bottle. (100 g in 900 ml)

Hydrogen peroxide

A powerful oxidizer. We don't want to leave samples in hydrogen peroxide for very long, or it will start affecting the charcoal. Buy 3% hydrogen peroxide in a drug store (the brown bottles)