Charcoal Procedures for Lake Sediments

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Charcoal Extraction and Sieving

A. Transfer 1 cc (Be sure to remove air bubbles/gaps using stick with stiffer sediments) to a small glass container (beaker).
B. Fill container with 10% KOH (weight/volume) so sediment is covered. Let soak for 48 hours, breaking up sediment clod gently with a probe/small stick as necessary. Cover container with plastic lid so that KOH not evaporate.
C. Use 180um sieve (number 80), being sure it clean before you begin.
D. Quantitatively transfer sample to sieve from beaker and rinse gently with water from shower head (should barely stream from head) until sediment completely sieved.
E. Work remaining sediment to edge of sieve and use di-H2O from squeeze bottle to transfer to plastic petri dish. Be sure that water not too thick in petri dish (barely enough to cover bottom)!!! If too much water is in petri dish then remove some with pipette.

Microscopy and Charcoal Counting

A. Be sure that magnification set at x20 and that you have good lighting
B. Charcoal Counting
    i. Gently rock dish so material evenly distributed over bottom.
    ii. Place petri dish on counting stage over grid and position
    iii. Begin counting (hand-held counter) moving from left to right and then down. Other patterns are be found but whole dish must be counted
    iv. Count charcoal that touching lower grid line but not higher grid line (to avoid double counting).
C. When you are done counting, transfer contents of dish to a small jar/vial and label and save for future reference.

D. Tricks and Tips
1. Be sure bottom of petri dish/grid is dry.
2. Double check that you have transferred label/tape from beaker to petri dish.

Is It Charcoal??

There may be many pieces of organic matter or other material that is dark/black and you will need to distinguish between these pieces and charcoal.

1. Charcoal is black, but also has many shiney facets and so has a rough appearance.

2. Charcoal is rectangular or squarish and has rough ends/edges and rarely is rounded.

3. Charcoal will fragment when pressed with probe while other material will not.

4. Cell walls (or more rarely veins) can be seen in many charcoal pieces.

5. Charcoal is dark throughout so if you see brown/yellow in piece (not to be confused with sediment that may be sticking to piece) then it not charcoal.

REMEMBER: BE CONSISTENT! Researchers with many years of experience will come up with slightly different counts because at a certain level subjective decisions must be made.

DON'T GIVE IN TO TEMPTATION to count pieces as/as not charcoal depending on location in core.