KCI EXTRACTION OF SOIL NH₄-N AND NO₃-N

Materials

- potassium chloride
- DI water
- 8L Rubbermaid tub w/lid
- large stir plate & magnet
- shaker
- 120ml sample cups
- autoanalyzer cups
- funnels & rack
- Whatman No.1 papers

Initial Pool Size:
1. Prepare several liters of 2M KCl (149g/L) in a large tub. (Allow for about 4L per 20 samples; this includes extra solution for filter leaching and for sampler washing during autoanalysis.)
2. Weigh out 5g field-moist soils, large rocks and roots removed, into a sample cup. (Also put aside ~1g soil for dry weight, below.)
3. Add 50ml 2M KCl and shake for 2 hours (also put 50ml in a cup with no soil for a blank).
4. Let sit for 24 hours.
5. Set up a rack with Whatman No.1 papers in funnels.
6. Leach each filter paper with 90ml of KCl (fill to the top of the funnel 3x) into a sample cup.
7. Pour a few ml of soil solution supernatant into the appropriate funnel to get rid of the pure 2M KCl.
8. Set up the rack over clean cups and pour the supernatant of the soil solution into the filter paper.
9. Transfer a few ml of the filtered solution to autoanalyzer cups (label vials, not caps, with sharpie). If samples will not be analyzed within 2 weeks, put them into the freezer. Do not overfill cups to be frozen; fill only 1/2 to 2/3 full to allow room for expansion.

Mineralization/Nitrification:
1. Follow steps 1&2 above.
2. Put the sample cups in a dark incubator for 30 days; record temperature and number of days.
3. Follow steps 3-8 above.
4. Net mineralization = (NH₄ + NO₃ at time 30) – (NH₄ + NO₃ at time 0)
5. Net nitrification = (NO₃ at time 30) – (NO₃ at time 0)

References:
Vitousek Lab Notes – KCl extracts
http://www.stanford.edu/group/Vitousek/kcl.htm
KCL and Resin Bag Extracts
http://www.stanford.edu/group/Vitousek/pigpro.html