

**NITRIFICATION POTENTIAL ASSAY**  
**AIR RESOURCES BOARD PROJECT**

June 23, 1995

**Preparation.**

1. 0.2 M  $\text{KH}_2\text{PO}_4$  Solution: Dissolve 2.722 g  $\text{KH}_2\text{PO}_4$  in 100 mL  $\text{H}_2\text{O}$ .
2. 0.2 M  $\text{K}_2\text{HPO}_4$  Solution: Dissolve 3.843 g  $\text{K}_2\text{HPO}_4$  in 100 mL  $\text{H}_2\text{O}$ .
3. 50 mM  $(\text{NH}_4)\text{SO}_4$  Solution: Dissolve 0.6607 g  $(\text{NH}_4)\text{SO}_4$  in 100 mL  $\text{H}_2\text{O}$ .
4. Flocculant Solution: Dissolve 7.35 g  $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$  and 10.15 g  $\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$  in 100 mL  $\text{H}_2\text{O}$ .
5. Nitrification Potential (NP) Solution: dilute 7 mL Solution 1, 18 mL Solution 2, 50 mL Solution 3, and 5.35 g  $\text{NaClO}_3$  to 5 L, and pH to 7.2.
6. Label 4 Lachat tubes for each soil.

**Method.**

1. Measure 100 mL of NP solution into 250 mL Erlenmeyer flasks.
2. Weigh out 10 g fresh soil into each flask.
3. Place on orbital shaker, 60 cycles / min.
4. At 2, 8, 14, and 24 hours, transfer 10 mL of suspension from each flask to centrifuge tubes.
5. Add a few drops of flocculant solution to each sample.
6. Centrifuge at 3000 rpm for 10 min.
7. Pour off supernatants into Lachat tubes, cap, and freeze.
8. At the conclusion of 24 hours, sieve the residues from the soil slurries through a 2 mm mesh.
9. Place the rocks in weighing tins, and dry in a 70° C oven overnight.
10. Record the dry rock weights from the soil slurries, then discard the rocks.