DETERMINATION OF AMMONIA IN SOILS

This method involves the fixing of the Ammonia in the soil by pH adjustment to ensure stability as Ammonium ions. The resultant sample is then analysed using an EDT directION Ammonium combination ISE Cat no. 3051.

The Ammonium electrode is calibrated with standardising solutions of known Ammonium concentration. Ammonium levels in the prepared samples can then be read either directly or from the calibration graph depending on the equipment used.

Equipment Required:

1. EDT directION DR359TX pH/Ion Analyzer OR pH Meter with
       millivolt scale
2. Ammonium Combination ISE Cat no 3051
3. Ammonium 1000ppm Stock Standard
4. ISAB. 0.001 Molar HCl

Reagents;

Ionic Strength Adjustment Buffer (ISAB)
Standard Ammonium Solution (1000 ppm).

ISAB – This is used to control the pH and prevent Ammonia being given off. Preferred ISA is 0.001 Molar
       Hydrochloric acid.

Standard Preparation

Prepare 500, 50 and 5ppm Ammonium standards by serial dilution of the Ammonium 1000ppm stock standard solution with deionised water. To 20ml of each standard solution add 2 ml of ISAB

Sample Preparation:

Disperse 10 gm of air-dried soil in 20 ml of distilled water. Mix thoroughly with a stirring rod. Allow to stand for 1 hour, stirring occasionally. Filter sample through a coarse filter paper. To the filtrate add 2ml of ISAB

Method:

Immerse the Ammonium electrode in each of the standards in increasing concentration steps, rinsing the electrodes with distilled water between standards. Plot a graph **on** lin/log paper of mV response against standard concentration.

Immerse the electrodes in the sample, record the mV response and plot sample concentration from the graph. This determination may be carried out directly in concentration units by use of the concentration mode on EDT directION pH/Ion analysers.

Calculations:

Sample concentration as read from the graph or direct from the display (if a Corning pH/Ion analyser is used) should be multiplied by **2,** to allow for sample dilution.