

Applications Methods

Method BWB/10

The Determination of Available Potassium in Soils



Equipment Required:

1. BWB Flame Photometer
2. Whatman No. 30 filter paper
3. Potassium chloride (Reagent)
4. Balance weighing to +/-0.0005g
5. Ammonium acetate
6. Acetic acid

Solutions and Standards:

Prepare 0.5M aqueous solution of ammonium acetate/acetic acid by taking 38.55g ammonium acetate and dissolving it in 29mls of glacial acetic acid and diluting to 1 litre with distilled water. Use this solution as Blank and to dilute Standards and samples. Prepare standard Potassium solutions to cover the range 0-100 ppm as follows:

1. Accurately weigh 1.907g Potassium chloride in about 50mls ammonium acetate/ acetic acid solution.
2. Transfer to a 500ml volumetric flask and dilute to the mark with ammonium acetate/acetic acid solution. This solution contains 2000ppm Potassium.
3. Transfer 25mls of this stock solution into a 500ml volumetric flask and dilute to the mark with ammonium acetate/acetic acid solution. This is the 100ppm Potassium solution.
4. From this prepare 80, 60, 40 and 30ppm standards using the $\text{CH}_3\text{COONH}_4/\text{CH}_3\text{COOH}$ solution as diluent.

Method:

1. Accurately weigh 10g of soil and transfer to a plastic bottle together with 50ml of acetate/acetic acid solution.
2. Stopper the bottle and shake using an automatic shaker for 30 minutes.
3. Remove from the shaker, allow to stand for several minutes. Filter the solution through a Whatman No. 30 filter paper.
4. Aspirate the Blank and Standards into the BWB Flame Photometer and enter the values when prompted.
5. Determine the Potassium content of the soil extract by spraying the solution, without further dilution, into the flame photometer and reading result on the display.