Exchangeable Acidity & Aluminum

Reagents

In 10 l carboy (enough for 65 samples)

745.9 g  Potassium Chloride (1 M KCl)
Bring to volume with DI water

In 1 l volumetric flask (enough for 100 samples)

58.1 g  Potassium Fluoride (1 M KF)
Bring to volume with DI water

Phenolphthalein indicator

Sodium Hydroxide Standard (1N NaOH)

Hydrochloric acid Standard (1N HCl)

Procedure

Add the following to 125 ml sample cup

10 g  Oven-dried equivalent, sieved soil (can be field fresh)
75 ml  Potassium Chloride (1 M KCl)

Place on orbital shaker (200 rpm) for 30 minutes

Filter suspension (coarse filter paper) in a plastic funnel into a 250 ml Erlenmeyer flask
Wash soil THREE successive 25 ml aliquots of KCl for a total of 150 ml per sample

Add five drops of Phenolphthalein indicator

Stir constantly with a magnetic stir plate
Titrate the solution with 1 N NaOH (or 0.1 N) using a titrating electronic pipette (accuracy 5 µl)
Note the volume to a permanent pink end-point for KCl-exchangeable total acidity
Repeat this procedure with 150 ml of 1M KCl (accounts for acidity in KCl)

Add 10 ml of 1 M KF & swirl to mix (solution should become dark pink)

Titrate the solution with 1 N HCl (or 0.1 N) using a titrating electronic pipette (accuracy 5 µl)
Note the volume to a permanent clear end-point for KCl-exchangeable Al^{3+}