

SCHEDULE 2

METHODS OF ANALYSIS

PART I

14d.

DETERMINATION OF THE pH VALUE

1 SCOPE AND FIELD OF APPLICATION

1. This method defines the procedure for measuring the pH value of a solution of a straight ammonium nitrate fertiliser containing more than 28% nitrogen by weight.

2 PRINCIPLE

2. Measurement of the pH of an ammonium nitrate solution by means of a pH meter.

3 REAGENTS

3. Distilled or demineralised water, free from carbon dioxide.

Buffer solution, pH 6.88 at 20° C

3.1 Dissolve 3.40±0.01 grams of potassium dihydrogen orthophosphate (KH₂PO₄) in approximately 400 ml of water. Then dissolve 3.55±0.01 gram of disodium hydrogen orthophosphate (Na₂HPO₄) in approximately 400 ml of water. Transfer the two solutions without loss into a 1 litre graduated flask, make up to the mark and mix. Keep the solution in an airtight vessel.

Buffer solution, pH 4.00 at 20° C

3.2 Dissolve 10.21±0.01 grams of potassium hydrogen phthalate (KHC₈O₄H₄) in water, transfer without loss into a 1 litre standard flask, make up to the mark and mix.

Keep this solution in an airtight vessel.

3.3 Commercially available pH standard solutions may be used.

4 APPARATUS

4. pH meter, equipped with glass and calomel electrodes or equivalent, sensitivity of 0.05 pH unit.

5 PROCEDURES

5

5.1 Calibration of the pH meter

Calibrate the pH meter (4) at a temperature of 20(±1)° C, using the buffer solutions (3.1), (3.2) or (3.3). Pass a slow stream of nitrogen onto the surface of the solution and maintain this throughout the test.

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Determination

5.2 Pour 100.0 ml of water onto 10 (± 0.01) grams of the sample in a 250 ml beaker. Remove the insolubles by filtering, decanting or centrifuging the liquid.

Measure the pH value of the clear solution at a temperature of 20 (± 1)° C, according to the same procedure as for the calibration of the meter.

6 EXPRESSION OF RESULTS

- 6.** Express the result in pH units, to the nearest 0.1 unit and state the temperature used.