84-015 SODIUM PYROPHOSPHATE SOLUBILITY INDEX

1. Application

1.1 This method provides a colorimetric estimation of the degree of humification of organic soil by measuring the color intensity of an extract obtained by treating the peat sample with sodium pyrophosphate solution which is able to extract the dark coloured substance more or less quantitatively. This method has the advantage that it yields a sodium pyrophosphate index fairly rapidly under controlled lab conditions.

2. Apparatus

2.1 Reciprocating shaker (Eberbach).

2.2 Filter funnels.

2.3 Filter paper (Whatman 2V folded).

2.4 125 mL Erlenmyer flask.

2.5 Spectrophotometer (Bausch and Lomb Spectronic 20).

2.6 Eppendorf pipette and disposable tips.

2.7 Disposable culture tubes (16 x 125 mm).

2.8 Disposable plastic vials (scintillation).

3. Reagents

3.1 0.025 M Sodium pyrophosphate ($Na_4P_2O_7.10H_2O$): Dissolve 11.152 g of sodium pyrophosphate in a 2 liter volumetric flask with distilled water.

4. Procedure

4.1 Weigh 0.5 g of air dried soil into a 125 mL Erlenmeyer flask.

4.2 Add 50 mL of 0.025 M sodium pyrophosphate and shake overnight (18 hrs).

4.3 Filter through # 2V folded filter paper and save the filtrate in plastic vials.

4.4 Make a five times dilution of the filtrate with distilled water and mix thoroughly.

4.5 Measure the absorbance of this solution at 550 mμ.

5. Calculations

5.1 Multiply absorbance by 100 to give an index of solubility.

6. Precision

6.1 Insufficient data available.

7. References

7.1 Schnitzer, M. and Desjardins, J.G. 1965. Carboxyl and phenolic hydroxyl groups in some organic soils and their relation to degree of humification. Can. J. Soil Sci. 45, 257-264.

7.2 Karl, A. 1956. Determination of the degree of humification in peat samples. Journal of the Scientific Agricultural Soc. of Finland 28, 18-35.