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## **Method Summary**

### **Determination of pH in Soil and Sludges using the GLpH pH Meter**

#### **Scope and Range**

This method details the operation of the Sirius GLpH meter to measure pH in soil and sludge samples.

This method applies to the analysis of sludge, soil, sediments and waste.

Range: pH 1.00-14.00  
Limit of Detection: N/A  
Results reported to: 0.01 pH units

#### **Principle**

The term pH is a number that expresses the concentration of hydrogen ions in solution; it is used to express the relative acidity or alkalinity of a solution.

The concentration of hydrogen ions in strong acids is very high and acidic solutions display a pH of less than 7, whilst the concentration of hydrogen ions in strong bases is low and alkaline solutions display a pH greater than 7. Neutral solutions have a pH of 7.

The pH of a solution is measured using a pH electrode connected to a pH meter.

The glass pH electrode consists of two half-cell electrodes; one has a pH-sensitive glass membrane, and the other a reference half-cell. When placed in a solution, a voltage expressed in millivolts (mV) is generated between them, and the voltage is related to the pH of the solution.

#### **Preparation and Analysis**

A representative sample should be taken and stored at 1 - 8 °C.

10g of homogenised 'as received' soil sample is mixed well with 25ml of deionised water and shook for 1 hour at 200 rpm.

The pH meter is calibrated using a range of buffer solutions after which the samples are run.

#### **Quality Control**

Quality control samples are run every 20 samples.

#### **Interferences**

This method is not suitable for soils or sludge with high saline contents.

Oil and grease may coat the electrode and cause errors in the pH readings. Glass wool is used to filter oily samples, to remove the interference.