**pH and Electrical Conductivity (EC)**

**Introduction**

A pH meter is a scientific instrument that measures the hydrogen-ion activity in water-based solutions thus, indicating its acidity or alkalinity which is expressed as pH. The pH meter measures the difference in electrical potential between a pH electrode and a reference electrode and is sometimes referred to as a "potentiometric pH meter". The difference in electrical potential relates to the pH of a solution with a pH of 1 being acidic, a pH of 7 being neutral and a pH of 14 being alkaline.

An **electrical conductivity meter** (**EC meter**) measures the electrical conductivity in a solution. Electrical conductivity is the measure of the concentration of ions present within a sample. This is calculated by the ability of the substance to transmit an electrical current over a defined area. The measurement unit for electrical conductivity is called Siemens(S) (e.g., milli-Siemens per centimetre mS/cm or micro-Siemens per cm μS/cm).

**Sampling requirements**

* At least 50 mL of sample (e.g., drinking water) is required for analysis.
* If possible, samples must be sent to the laboratory on the day of collection or shipped on an overnight delivery.
* Samples will be accepted from Monday to Friday by latest 11:00 am for same day analysis.
* Collect samples, if possible, in 50 mL centrifuge tube which are clearly labelled according to your sample submission template.
* Make sure that the lids of your centrifuge tubes are secured tightly to prevent leakage of your samples.
* Remember to fill in and send the BIOGRIP\_pH sample submission template and/or BIOGRIP\_Electrical Conductivity (EC) sample submission template to jcolling@sun.ac.za and vmoonsamy@sun.ac.za which can be found on our [website](http://www.sun.ac.za/english/faculty/science/CAF/Pages/BIOGRIP%20Sample-Requirements.aspx).