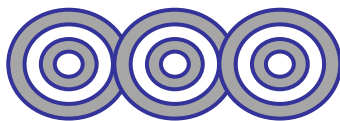




Instrumental Methods of Analysis



Electroanalytical Methods Categories

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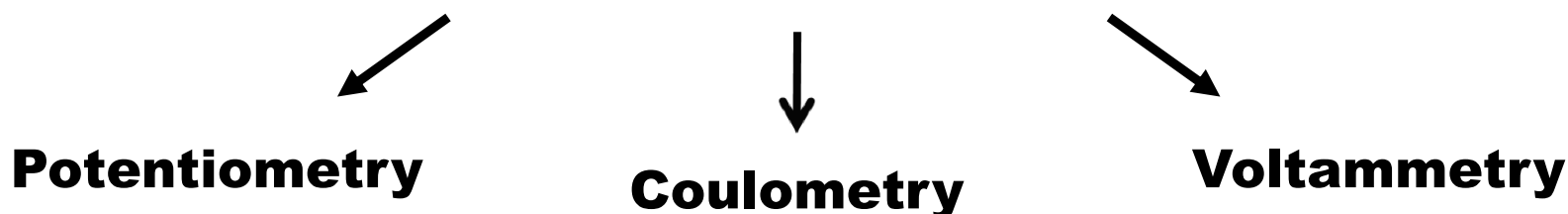
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Electroanalytical methods are a class of techniques in analytical chemistry which study an analyte by measuring the potential (volts) and/or current (amperes) in an electrochemical cell containing the analyte.

Electroanalytical methods can be broken down into several categories depending on which aspects of the cell are controlled and which are measured.

Electroanalytical methods



Potentiometry

the difference in electrode potentials is measured

passively measures the potential of a solution between two electrodes, affecting the solution very little in the process

one electrode is called the reference electrode and has a constant potential, while the other one is an indicator electrode whose potential changes with the composition of the sample

the difference of potential between the two electrodes gives an assessment of the composition of the sample

Coulometry

the cell's current is measured over time

uses applied current or potential to completely convert an analyte from one oxidation state to another.

the total current passed is measured directly or indirectly to determine the number of electrons passed

the number of electrons passed can indicate the concentration of the analyte

Voltammetry

the cell's current is measured while actively altering the cell's potential

applies a constant and/or varying potential at an electrode's surface and measures the resulting current with a three electrode system

very small amount of the analyte is consumed at the two-dimensional surface of the working and auxiliary electrodes

e.g. polarography and amperometry

