



Fact Sheet – Spectrophotometry

Spectrophotometry is a method to measure how much a sample absorbs light. This is done by passing a beam of light through a sample solution and measuring the intensity of light reaching the detector. The basic principle is that each compound absorbs or transmits light over a certain range of wavelength. This measurement can also be used to measure the amount of a known chemical substance. Spectrophotometry is one of the most useful methods of quantitative analysis in various fields such as chemistry, physics, biochemistry, material and chemical engineering and clinical applications.

A spectrophotometer, in general, consists of two devices; a spectrophotometer and a photometer. A spectrophotometer is a device that produces, typically disperses and measures light and a photometer indicates the photoelectric detector that measures the intensity of light.

With the spectrophotometer, the amount of a known chemical substance (concentrations) can also be determined by measuring the intensity of light detected. Depending on the range of wavelength of light source, it can be classified into two different types:

- **UV-visible spectrophotometer:** uses light over the ultraviolet range (185 - 400 nm) and visible range (400 - 700 nm) of electromagnetic radiation spectrum
- **IR spectrophotometer:** uses light over the infrared range (700 - 15000 nm) of electromagnetic radiation spectrum