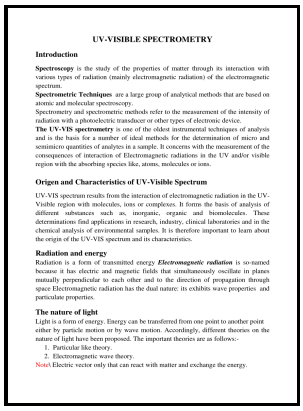
Introduction to ultraviolet & visible spectrophotometry

Pye Unicam - Ultraviolet



UV-VISIBLE SPECTROMETRY

Introduction

Spectroscopy is the study of the properties of matter through its interaction with various types of radiation (mainly electromagnetic radiation) of the electromagnetic spectrum.
Spectrometric Techniques are a large group of analytical methods that are based on atomic and molecular spectroscopy.
Spectrometry and spectrometric methods refer to the measurement of the intensity of radiation with a photoelectric transducer or other types of electronic device.
The UV-VIS spectrometry is one of the oldest instrumental techniques of analysis and is the basis for a number of ideal methods for the determination of micro and semimicro quantities of analytes in a sample. It concerns with the measurement of the consequences of interaction of Electromagnetic radiations in the UV and/or visible region with the absorbing species like, atoms, molecules or ions.

Origen and Characteristics of UV-Visible Spectrum

UV-VIS spectrum results from the interaction of electromagnetic radiation in the UV-Visible region with molecules, ions or complexes. It forms the basis of analysis of different substances such as, inorganic, organic and biomolecules. These determinations find applications in research, industry, clinical laboratories and in the chemical analysis of environmental samples. It is therefore important to learn about the origin of the UV-VIS spectrum and its characteristics.

Radiation and energy

Radiation is a form of transmitted energy ***Electromagnetic radiation*** is so-named because it has electric and magnetic fields that simultaneously oscillate in planes mutually perpendicular to each other and to the direction of propagation through space Electromagnetic radiation has the dual nature: its exhibits wave properties and particulate properties.

The nature of light

Light is a form of energy. Energy can be transferred from one point to another point either by particle motion or by wave motion. Accordingly, different theories on the nature of light have been proposed. The important theories are as follows:-

1. Particular like theory.
2. Electromagnetic wave theory.

Note**:** Electric vector only that can react with matter and exchange the energy.

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This edition was published in 1985

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Introduction to UV Air Treatment, by Michael M.

The barn looks red because it absorbs green light. UVA radiation is a longer wave than UVB radiation. Wavelengths of intense absorption tend to favor coating surface cure while wavelength of lower absorption tends to favor coating through cure.

Introduction to UV & EB

Department of Energy, June, 1997 p.

An Introduction to Ultraviolet

That's all free as well! But a base tan only prevents about 4 percent of UV rays from penetrating your skin, which just means that it may take you a little longer to burn. Ultraviolet rays can be used to purify water to a higher level of cleanliness, and can be used to disinfect whole rooms or instruments by exposing them to UV light.

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However, the atmosphere greatly affects the spectrum of the radiation that reaches the surface. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

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