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INFRARED AND ULTRAVIOLET RAYS OF THE SUN

Abstract: This article discusses the harm, importance and role of infrared and ultraviolet radiation. Also, the article provides more complete theoretical information about the rays coming from the sun. This article can be used by specialists working in the field of health, students and masters studying in this field, and independent researchers.
Keywords: infrared, ultraviolet, radiation, electromagnetic, spectrum, optical fibers, spectroscopy, thermometer.

INTRODUCTION

Infrared (IR) and ultraviolet (UV) light are two different parts of the electromagnetic spectrum. They have their own characteristics and applications. Infrared Rays Description: Infrared rays are electromagnetic rays that are invisible to the eye and can range from 700 nanometers (nm) to 1 millimeter (mm) in length. Sources: Sun, hot objects (eg hot metal), infrared lamps. Applications: Thermal Imaging: Infrared cameras are used to measure the temperature of objects. Medicine: Infrared rays are used, for example, in physiotherapy. Telecommunications: Infrared rays are used for data transmission over optical fibers.

Adverse Effects: Infrared Rays: Prolonged exposure may cause skin dryness or heat damage. UV rays: Can damage the skin, increase the risk of skin cancer, and damage the eyes.

METHODS

In general, infrared and ultraviolet rays play an important role in human life, and it is necessary to use them correctly and safely. Infrared and ultraviolet radiation testing methods require the use of different equipment and methods. Here are some basic techniques for each type of radiation:

Infrared radiation testing methods. 1. Infrared Cameras: Description: These cameras are designed to capture and record infrared rays. They are useful in determining the temperature of objects. Applications: Thermal imaging, building insulation and heat loss detection. 2. Thermometers: Description: Infrared thermometers allow measuring the temperature of objects from a distance. Application: Fast and accurate temperature measurement in medicine, industry and laboratories. 3. Spectroscopy: Description: The chemical composition and structure of materials can be determined using infrared spectroscopy. Applications: In chemistry and biology research.

Ultraviolet radiation testing methods. 1. UV detectors: Description: UV detectors are designed to detect and measure ultraviolet rays. They are often equipped with photodiodes or photomultipliers. Applications: Environmental monitoring, UV radiation measurement. 2. UV spectrometers: Description: These instruments allow to analyze the spectrum of UV rays. Application: Chemical analysis and study of material properties. 3. UV Indicator Papers: Description: These papers change color when exposed to UV rays and thus indicate the level of UV radiation. Application: For rapid inspections in industrial and laboratory conditions.

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RESULTS

General recommendations. Calibrated equipment should be used when making measurements. It is necessary to observe safety measures during the measurement process, especially when working with ultraviolet radiation. It is important to refer to standards to analyze and compare the results obtained. These methods can be effective in determining the intensity of infrared and ultraviolet radiation.

DISCUSSION

Solar radiation is produced as a result of thermonuclear reactions on the surface of the sun and consists of electromagnetic and corpuscular particles. Only a certain part of the solar radiation reaches the earth's surface, and therefore it is considered sufficient to ensure the emergence and continuation of the world of life on earth. The importance of the optical part of the composition of solar radiation is very important. This type of radiation includes infrared rays (760-2800 nM), ultraviolet rays (290-400 nM), visible rays (380-760). The value of solar radiation is different in different parts of our planet, and it can change in different values in some places according to geographical latitudes. This value is called the solar constant. In the equatorial zone of the globe, its value is 1.59 kcal/cm2. min, Tashkent sh. around - 1.34 kcal\cm2.min. is equal to Part of the solar radiation is scattered in the atmosphere and absorbed by the atmospheric layers, and part has reached the earth's surface (direct solar radiation). The Earth's surface also partially absorbs solar radiation, while also reflecting some of it. The reflection of solar radiation by surfaces is called albedo, and it is important from a hygienic point of view. Because this returned radiation is of great importance in creating the climate conditions on the surface of the earth and the microclimate in certain geographical areas. An example of this is the formation of microclimate conditions in the rooms of closed buildings. In the conditions of the hot climate of our republic, it is very important to correctly assess this factor: if the outer walls of the houses are painted black, the value of the reflected light, i.e. albedo, is very low, and as a result, the surface of these walls is heated. Radiation coming from the sun accumulates on darkened walls (accumulation) and causes the temperature in the room to rise. In the hot climate of Uzbekistan, this microclimate has a warming effect on the human body. From this point of view, in our conditions, it is considered the best option to paint the external walls of buildings in white, airy colors, because the albedo of such walls is very high (80-90%). Hygienic importance of solar radiation. Qualitative and quantitative definition of the optical part of solar radiation, factors affecting its intensity. Physical definition of infrared, visible and ultraviolet rays and their biological importance. Climate change. Ultraviolet rays of solar radiation have the highest biological activity. These rays cannot be received by the human vision analyzer, but despite this, these rays have a strong effect on biological tissues. The nature of this effect depends on the wavelengths of ultraviolet rays. All types of ultraviolet rays have a healing effect on the body and increase tone.

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