The color of light is determined by its wavelength. The two ratings that are commonly used to describe the color properties of lamps are color temperature and color rendition (CRI). Color temperature is the color appearance of the light produced by a lamp and the color appearance of the lamp itself. It is measured on a Kelvin scale (K). A lamp with a low color temperature will have a "warm" appearance (red, orange, or yellow). Conversely, a lamp with a high color temperature will have a "cool" appearance (blue or blue-white). Color rendition is a measure of how the lamp influences the color appearance of the objects that are being illuminated. It represents the ability of a lamp to render color accurately and to show color shade variations more clearly. High color rendition allows us to see objects, as we would expect them to appear under natural sunlight. Color rendition is measured via a complex process on the Color Rendition Index scale ranging in value from 0 to 100.

To put it in slightly different terms, the color temperature of light refers to the temperature to which one would have to heat a "black body" source to produce light of similar spectral characteristics. A black body is a theoretically ideal radiator and absorber of energy at all electromagnetic wavelengths. The term black body comes from the fact that a cold black body appears visually black. As a simple example, consider the heating element of an electric stove. When it is cold it appears black. When it is heated it begins to glow red.

Low color temperature implies warmer (more yellow/red) light while high color temperature implies a colder (more blue) light. The standard unit for color temperature is Kelvin (K). (The Kelvin unit is the basis of all temperature measurement, starting with 0 k at the absolute zero temperature. The "size" of one Kelvin is the same as that of one degree Celsius, and is defined as the fraction 1/273.16 of the thermodynamic temperature of the triple point of water, which positions 0° Celsius at 273.16 k.)

It shouldn't be forgotten that a color temperature value, though expressed as a single number, doesn't describe a simple property. In reality, it only summarizes the spectral properties of a light source. Two light sources with the same light color can differ widely in quality, e.g. when one of them has a continuous spectrum, while the other just emits light in a few narrow bands of the spectrum. Some of the qualitative aspects of such a spectrum can be summarized by means of its color rendering index (CRI). Therefore the higher the CRI, the higher the “quality” of the light produced. CRI is measured on a scale from 0 to 100. A 100 CRI light bulb does not exist.

Full (Natural) Spectrum bulbs will usually have a color temperature of 5000K or higher and a CRI of 90+. CRI is a complicated measurement that produces a scale from 0 to 100, with 100 being natural sunlight.

Never confuse Kelvin and CSI with UVB!

Only specially manufactured quartz type glass Mercury Vapor bulbs and specially manufactured quartz type glass Florescent bulbs will produce “useable” (D-UV) UVB. To look to other sources (other than the Sun) is a waste of time.