

## What do I to consider when choosing a bulb?

Color temperature or chromaticity refers to the color appearance of the light that comes from a light source. It's an important performance characteristic to assess when evaluating lamps because a lamp's chromaticity creates the mood of the space you are lighting and can thus influence buying behavior or work performance. Also referred to as Correlated Color Temperature (CCT), the apparent color of a light source is measured in Kelvin or "K".

Imagining a piece of iron (a horseshoe, for instance) in a fire can help you visualize color temperature in lamp types designated as "warm" or "cool." At first the iron becomes "red-hot." Red is the color of light being generated by the metal at a certain temperature. Continuing to heat the metal makes it "white-hot," and heating it further would cause it to become "blue-hot" like flash bulbs or stars).

In describing color temperatures, a low color temperature corresponds to "warm" or a red-yellow appearance like incandescent lamps at 2700 Kelvin. Fluorescent lamps operating at 3500 K give off a "neutral" white light. "Cool" light comes from sources like cool white fluorescent lamps operating at 4100 K. In color temperature, the higher the Kelvin temperature, the whiter and then the bluer the light.

### **Color Rendering**

Another key performance characteristic, color rendering, is the ability of a light source to represent colors in objects. The relative measure of this ability is color rendering index or [CRI](#) which rates light sources on a scale of 0 to 100. The higher the CRI, the more vibrant or close to natural the colors of objects appear. For example, a CRI of 0 would come from a source that provides light without color, much like a black and white television. A CRI of 100 would represent a source that has the rendering capabilities of incandescent light (for sources below 5000K) or "daylight" (for sources above 5000K). CRI is especially important when evaluating fluorescent and HID sources because they have a wide range of CRIs.

Light from lamps with good (70-80) and excellent (80+CRI) color rendering properties is said to be "high quality light" because objects and people look more appealing and the light level itself is perceived to be higher.

Good [color rendering](#) is critical in settings where it is important that people appear natural, in retail applications where merchandise must look appealing, and in restaurants where food must look appetizing. In office and factory applications, high color rendering can increase visual clarity and create a more pleasing and productive work environment.