

## Temperature of Light

The temperature of light is measured on the Kelvin (K) scale and has importance throughout your image production efforts. You should be knowledgeable of how color temperature effects film and CCD images. You should have your monitor set to a proper color temperature, and your working environment as color neutral as possible. If you are creating color proofs or final printed output, you should have the right kind of lighting to view the output.

### Daylight Color Temperature

The color temperature of sunlight starts and ends at about 2200K, a red-orange light. Light temperature rises as the sun rises in the sky, getting progressively bluer. At mid-morning and mid-afternoon, say 10 am and 2 pm respectively, color temperature is about 5500K. The average person perceives this as neutral in color, and this is the temperature that most daylight film is balanced to. At noon, on a clear day, color temperature rises to about 6500K. On a hazy day, with no direct sunlight, color temperature can rise to 7500K.

### Color Temperature and Color Casts

Color casts in images are sometimes the result of using the wrong color temperature film or wrong temperature setting on your digital camera for the lighting at hand. Daylight film, typically balanced for 5500K, used under fluorescent lights (typically 4000K, but can vary widely) can produce a ghastly green hue, or when used under incandescent lights (typically 2200-2800K) will look orange.

It stands to reason that using the right film or color setting, or using color corrective filters, will avoid the problem in the first place. This is more than simply avoiding the time it takes to correct a color cast in Photoshop. Even though you will usually be able to achieve a reasonably good image by correcting color casts digitally, you will never achieve the same quality as if you had taken the image correctly in the first place.

That said, it is nice to have the ability in programs like Photoshop of correcting these color cast problems rather than discarding the image altogether.

### Monitor Color Temperature

Most monitors come preset from the factory at 9300K, almost twice the neutral 5500K. For accurate color work, monitors should be reset to a more neutral color temperature, typically either 5000K or 6500K.

### Viewing Conditions

Viewing conditions apply to the conditions under which you view your image on a monitor, conditions under which you view material whose colors you are trying to match on-screen, and the conditions under which you view printed output.

Even if your monitor is properly calibrated, poor viewing conditions can effect your perception of colors on screen. Ideally, any windows in your workspace should be shaded and your monitor should be situated such that light does not reflect directly off the screen. Strong wall colors, even colored clothing, can also effect your perception of on-screen color. A darkened room with neutral gray walls and a minimum of lighting is the ideal. I suspect few of us achieve this, but the closer you can get, the better your color perception will be.

The viewing of material whose colors you are trying to match should be under a color neutral light, typically a 5000K light source (D50 standard) in the US and a 6500K light source (D65 standard) in Europe and Asia. Printed output should also be viewed under color neutral lighting. Just as importantly, color output should be viewed under the same lighting conditions where it will be seen. For instance, if work is destined to be seen in an office setting, you should probably view it under fluorescent lighting.

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