

WHITE BALANCE

In photography and image processing (both digitally and in the traditional darkroom) white balancing is the global adjustment (changing the whole image the same degree) of the intensity of the colors with the goal of rendering neutral colors as accurately to the original scene as possible. This is also referred to as color balancing and gray balancing since the amount of change is determined by what is needed to make grays grayer or white whiter. The entire scene is said to have a color cast if these neutral tones have hints of red, green or blue in them. The process of removing these color casts involve adding cyan, magenta, or yellow.

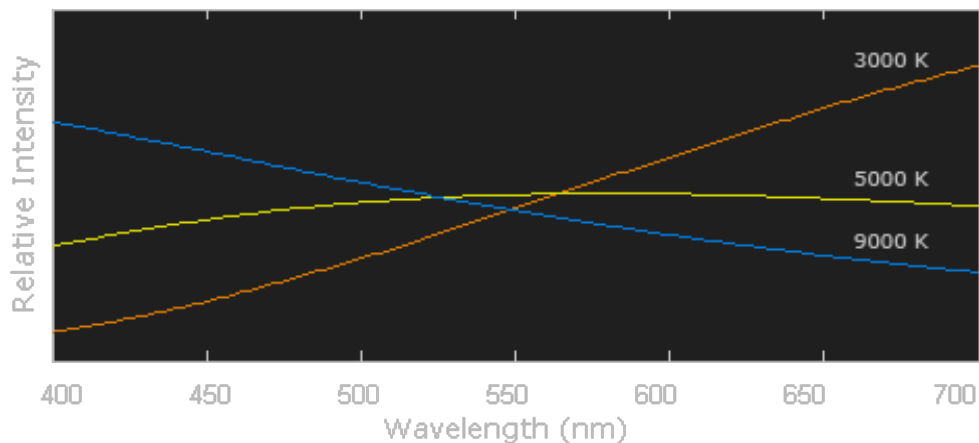
To correct out too much

Red
Green
Blue

Add

Cyan
Magenta
Yellow

Color temperature is what determines how the scene is recorded by a camera's sensor or even on color film. Color temperature describe the spectrum of light which is radiated from something pure black (an object that absorbs all light falling on it, neither reflecting any light or allowing it to pass through.) Think of heating a stone: they become red hot when at one temperature, then white hot at an even higher temperature. Despite the term "white light" it may not necessarily have an even distribution of colors across the visible spectrum depending on the temperature of its source.











Note that 5000K produces roughly neutral white light whereas 3000K and 9000K shift significantly. As the temperature rises, the color distribution becomes cooler, resulting from shorter wavelengths that contain light of higher energy.

Photographers take this ideas that white light may not consist of pure white light and use the temperature of the light source present in the scene to determine how much correction is required.

<i>Color Temperature</i>	<i>Light Source</i>
1000-2000K (warm toned)	Candlelight
2500-2500K	Tungsten Bulb (regular light bulb)
3000-4000K	Sunrise/Sunset (clear day)
4000-5000K	Fluorescent Lights
5000-5500K (neutral toned)	Electric flash
5000-6500K	Daylight with clear Sky (sun overhead)
6500-8000K	Moderately overcast sky
9000-10000K (cool toned)	Shade or heavily overcast sky

While old-fashioned film cameras required an extensive set of filters to be screwed on to the front of your camera to correct color casts, DSLRs have an in-camera means to correct color casts: preprogrammed white balancing options:

-  **AWB** AUTO
camera sets white balance
-  **DAYLIGHT**
camera adds warm tones
-  **CLOUDY**
camera adds warm tones
-  **SHADE**
camera adds warm tones
-  **TUNGSTEN**
camera adds cool tones
-  **FLUORESCENT**
camera adds warm (red) tones
-  **FLASH**
camera adds warm tones
-  **CUSTOM**
photographer sets white balance