



PREPRESS TWO CENTS: RGB vs. CMYK Color Mode: What Difference Does it Make?

OR: Why can't I print the brighter RGB colors?

It happened again: you sent your job to the printer, and the preflight report you received says you have some RGB images. What's the big deal? One color mode is pretty much like the other, right? Wrong. Let's look briefly at color models.

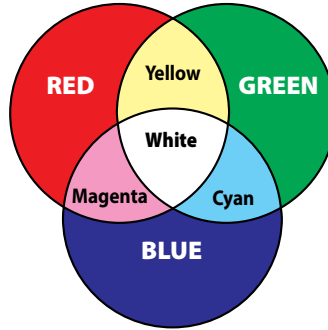
No device is capable of reproducing the full range of colors visible to the human eye. Each device operates within a specific color space which can produce a certain range of colors.

RGB (Red, Green, and Blue) is an *additive* color model. If you combine red, green and blue light, the sum will be white light. This is the principle behind your tv screen and computer monitor.

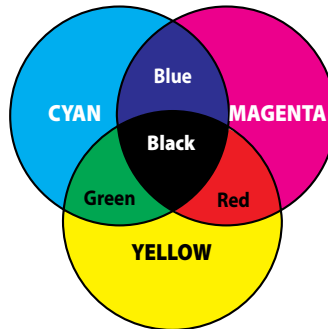
CMYK (Cyan, Magenta, Yellow and Black) is a *subtractive* color model. If we print cyan, magenta and yellow inks on white paper, they absorb the light shining on the page. Since our eyes receive no reflected light from the paper, we perceive black. The colors generated by light (RGB) cannot be reproduced on paper, so the printing industry operates in subtractive or CMYK mode.

Inadvertently, designers often provide RGB images which we automatically convert to CMYK during the ripping process to make the images printable. Most of the time the color change

RGB
(Video Display Color Model)



CMYK
(Printing Color Model)



that occurs is slight. However, every once in a while, the transition to CMYK mode results in a complete change in color tones. And some colors, such as RGB blue, can *never* be accurately reproduced with ink.

Why? It's possible to attain a much larger percentage of the visible spectrum with the RGB model. That's because the RGB model uses transmitted light while the CMYK model uses reflected light. The muted or darker appearance of the CMYK model is a result of the limitation of printing inks and the nature of reflected light.

So what's the bottom line? If you're at all concerned with color, be sure to convert all your graphic files to CMYK and make any necessary color adjustments *before* you send your files to your printer.

If you have additional questions about the differences between RGB and CMYK or need help with a specific project, please contact us.