

# COLOR VARIANCE

**Have you ever wondered why the color you believe you have created is not the color you get?**

## **Light & Color**

The primary colors are red, blue and yellow; these colors refer to pigment and paint rather than the spectrum of light. In fact, the primary colors of the light spectrum are red, green and blue. Objects appear as a certain color because they absorb some primary colors and reflect others. A red object appears red because it is absorbing green and blue light, while reflecting red toward your eyes.

## **RGB**

The RGB (Red, Green and Blue) colors on a screen are created by adding light to change a black appearing screen. Four color process printing uses reflection of certain colors until a desired color is visible. These two different systems are called additive color and subtractive color. The screen is additive color because light is added to create color. The press uses subtractive color because inks are used to partially block the reflection of light.

## **CMYK**

CMYK (Cyan, Magenta, Yellow and Black) uses different percentages of cyan, magenta, yellow and black to create or "build" color. This technique is sometimes called screened color because screens of each color are used to create a new color. Because process colors are "built" from two to four inks, they sometimes look murkier than a spot color. Some spot colors are impossible to render through process color. Consequently, the color on the monitor can create a number of strong colors that cannot be reproduced in print. A conversion from RGB to CMYK is necessary for printing process color.

## **RGB vs. CMYK**

Remember: Never judge color based on what it looks like on your monitor. One of the issues that affect color printing on a fundamental level is the incompatibility of screen color with printed color.