

# Color Terms

**Additive color** Color in our natural world is comprised of three primary colors: red, green, and blue. These colors behave additively, with any two creating a third, and all three creating *white*.

**CMYK** The usual abbreviation for cyan, magenta, yellow, and black: the inks used in color process printing.

**Color filter** A sheet of colored glass, plastic, or gelatin with biased transparency. A red filter, for example, allows only red light to pass through, while it absorbs light of other wavelengths. Filters are basic to color scanning and color-separation photography.

**Color management** Color management is the process of measuring the actual performance of a device, comparing that to a set of known color values, and making adjustments to overcome the differences. Color management is an integral part of publishing systems.

**Color-matching system** A system of color samples that allows a designer to specify exact colors by number or letter.

**Color profile** A component of a color management system, the profile describes the color behavior of a device such as a computer display, a scanner, a proof printer, or a press.

**Color separation** Separating a multicolor image into four monochrome components, one for each of the process colors.

**Color sequence** The order in which process colors are printed. A common color sequence is black-cyan-magenta-yellow. Printer's ink is formulated for a specific sequence.

**Color space** The color environment in which an image exists. Common color spaces include RGB (red, green, blue), CMYK (cyan, magenta, yellow, black), Lab (based on one channel for luminance and two color channels), and grayscale.

**Color value** The tonal value of a color, analogous to gray level on a scale from dark to light.

**Duotone** A duotone is a photograph printed with two colors of ink. Usually the two inks are assigned to different tonal ranges of the image.

**Gray-component replacement (GCR)** A method for replacing neutral grays made up of combinations of cyan, magenta, and yellow with a similar *value* of black ink. GCR improves the printability of a job by making neutral grays easier to balance on press.

**High-fidelity color** Any project that is printed with more than the traditional four process colors can be said to be *high fidelity color*. Most commonly this is CMYK, plus orange and green, the system developed by Pantone, Inc., called Hexachrome.

**ICC** The International Color Consortium, a group who establishes methods and standards for color management systems, color profiling, and the application of color in graphic arts.

**JPEG** An acronym for the *Joint Photographic Experts Group*, and a format for compressing still images by image analysis and modification. JPEG is a *lossy* method of compression, in that color or detail can be discarded in order to make the file smaller.

**Monotone** An image made with one color of ink.

**Primary colors** There are two systems of color that affect the graphic arts. Additive color is the color of light, made-up of red, green, and blue *primaries*, and subtractive color is the system of inks where *primaries* of cyan, magenta, and yellow ink *filter* white light to impart color to it.

**Process color** Multicolor printing that simulates full-color imagery. Typical systems for printing process color include cyan, magenta, yellow and black (CMYK) and Hexachrome (CMYK plus green and orange).

**Quadtone** An image that uses four inks.

**Raster Image** An image recorded by specifying the color at each cell of a grid. An individual cell in the grid is called a pixel (short for “picture element”) and the grid of pixels is called a raster. Digital cameras and scanners produce raster image files, and image-editing software supports on-screen display and modification of raster images.

**Raw** Raw files are images from digital cameras where information recorded by the image sensor is saved without loss or in-camera adjustments.

**Secondary color** Secondary colors are combinations of primary colors. Mixing yellow and cyan, for example, creates green, a secondary color in the subtractive color system.

**Spot color** Refers to a method of specifying and printing colors in which each color is printed with its own ink rather than by a combination of the four process colors (CMYK). The purpose of spot colors can be to simplify a color match or to expand the range of colors available in a printed project.

**Subtractive color** The system of color used to produce printing with layers of transparent ink. Subtractive color primaries are cyan, magenta, and yellow. When combined in pairs, they produce red, green, and blue, but when all combined, they produce a muddy-brown rather than a true black, so we supplement with a fourth color, black, to compensate for this shortcoming.

**SWOP** The acronym for *Specifications* [for] *Web Offset Publications*, a set of printing specifications for web-fed offset printing.

**Tritone** An image that uses three inks.

**UCR—Undercolor Removal** When color separations are made, the combination of colors might exceed the Total Ink Coverage value for a certain press and paper, so the ink will not dry. UCR compensates for the excess by removing small percentages of ink. UCR describes a typical color separation, where GCR describes a more sophisticated separation process where neutral colors are modified and substituted by black ink (see GCR).

**Vector graphics** Digital images determined by specified points and mathematical functions. A benefit of vector graphic over raster, or bitmapped, graphics is a smaller file size.

**Working space** As defined by Photoshop, the color space in which an image resides while it is open in the image-editing application. Various color spaces are available, each with its own qualities. The objective is to choose one that is large enough to accommodate any color you might want in an image.