Working With Colors

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INK:

The physical form of color; Ink is how color is applied to paper
There are two different types of inks:

- **TRANSPARENT INKS** are commonly used in printing
- **OPAQUE INKS** are considered a specialty ink
  and generally cost more

COLOR:

in printing, there are two types of color modes:

- **SPOT COLOR**; aka: Match color, PMS color, Solid color
- **4-COLOR PROCESS**; aka: Process, CMYK

SPOT COLOR

• A pre-mixed color; a color mixed prior to the printing press

PMS : PANTONE MATCHING SYSTEM

• Color system that has several color libraries for reference in reproducing color

• Popular PMS color libraries:

• Spot color Formula guide (coated, uncoated, and matte versions) solid color guide that identifies specific colors

• 4-Color Process Guide (coated and uncoated versions) identifies colors using CMYK inks

• Color Bridge (coated and uncoated versions) using the colors from the spot color Formula guide this book shows the difference between a spot color and the same color when converted to CMYK

• Metallic Inks   • Pastels   • Tints

• www.pantone.com

COATED:

Paper stock that has been treated with a special coating in order to have a glossy appearance.

• Ink sits on this type of paper stock as a result of the glossy coating

• Colors appear to be brighter compared to uncoated paper Matte: coated paper stock that has been dulled

UNCOATED :

Paper stock that has not been treated; it has no coating.

• Ink is absorbed into this type of paper stock

• Ink color appears darker and duller

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BENEFIT OF USING SPOT COLOR:

• consistent color within a print job.

DISADVANTAGES OF USING SPOT COLOR:

• Limited range of colors within a design

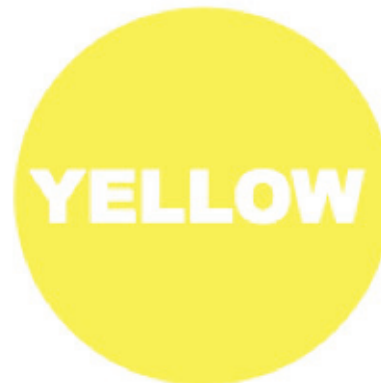• Colors can be inconsistent on various paper stock

SPOT COLORS ARE NORMALLY USED:

• Designing identities for companies; the consistent color aides in the brand of a company

• Print jobs with low budgets

CMYK: CYAN, MAGENTA, YELLOW AND BLACK

- Process color is printing with 4 basic ink colors on press; The ink colors are cyan, magenta, yellow and black

- Color process in printing that allows for the creation of full, life-like color on the press

- Through use of halftone patterns and various dot sizes these four colors are printed to paper in layers to create an image, text and graphics

CYAN   MAGENTA   YELLOW   BLACK

BENEFIT OF USING PROCESS COLOR:

• Unlimited colors within a print job

DISADVANTAGES OF USING PROCESS COLOR:

• Registration sometimes can be problematic

• Colors can be inconsistent

PROCESS COLORS ARE NORMALLY USED:

Within the last 10 years printing process colors has become so inexpensive it is common to see almost anything printed using the CMYK color model.

USING PROCESS COLORS:

Process colors can be formulated in many ways, through published books, color calculating apps, or by just guessing the color percentages.

Although Pantone Matching System® (PMS) has two books with formulated process colors (uncoated and coated process color), some designers use the Pantone Spot color books as a reference to color, and convert the spot color to process. By doing this the color, in many cases, the characteristics of the color will alter. Although this technique is not recommended, it is commonly used within the field with designers as well as printers.

SEPARATIONS:

A process in prepress, it is the act of converting a digital file into the separate ink layers. This is performed when creating printing plates for the press.

CYAN

MAGENTA

YELLOW

BLACK
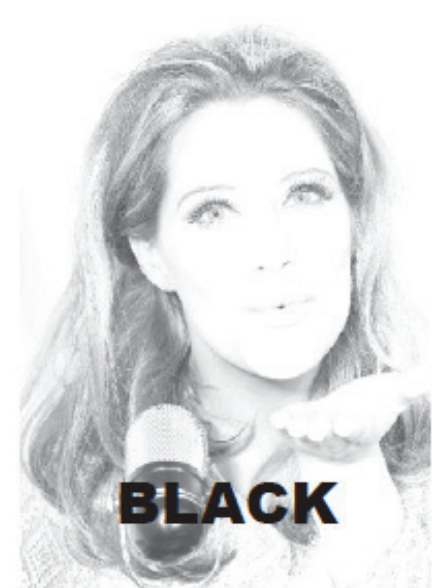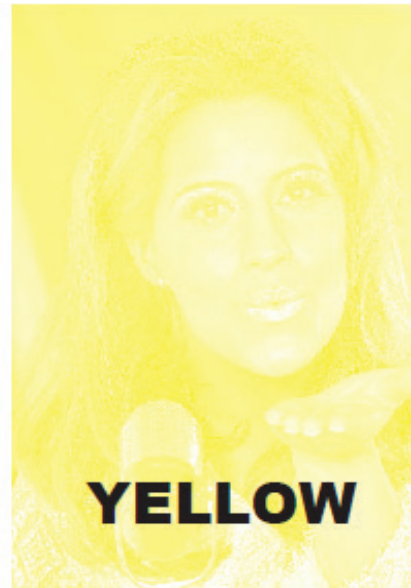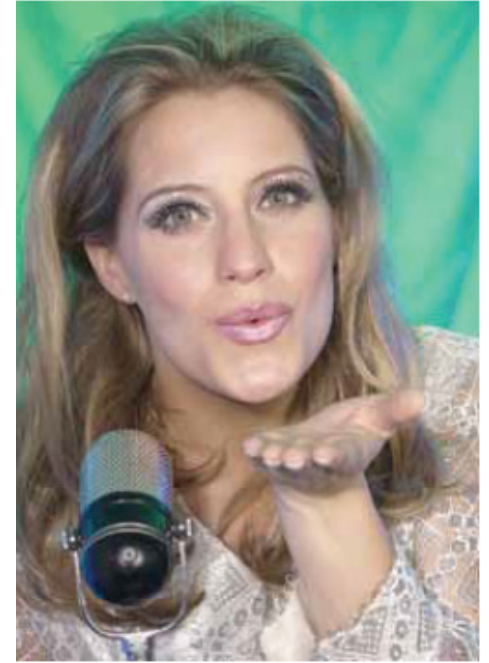
KNOCKOUT:

Since most inks are transparent, printers use the technique of **KNOCKOUT** to prevent from overlapping design elements mixing colors with other design elements. The element(s) in the background automatically cuts out the element(s) in the foreground to prevent from overprinting.

In Figure 1, without **KNOCKOUT** the red star would print purple, and the yellow A would print a mud brown. Because of knockout, all colors print as they are intended. Knockout is a default feature in programs like illustrator and InDesign.
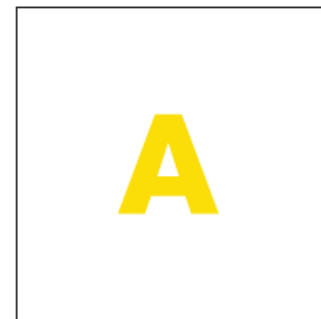
Figure 1	Figure 2	Figure 3	Figure 4
Illustration in Spot color	Knockout of PMS 295 plate	Knockout of PMS 188 plate	PMS 109 plate

TRAPPING:

When elements are knockout, an element's edges overlaps the edges of another to create a thin border. This helps to avoid gaps of blank space between the two elements.

This is something the prepress department sets up prior to printing;

A designer normally does not worry about this, but needs to be aware of it, especially during a press check when inspecting a print job.

One can find excellent samples of poor trapping when looking at collateral that was printing with spot colors.

A letter with trapping

A letter with poor trapping

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MISREGISTRATION / OFF-REGISTER / OUT OF REGISTER:

When the color plates on a press are not aligned/registered. As a result the image/text appears to be in 3-D or blurred.

REGISTERED

OUT OF REGISTER

OVERPRINT:

When there is no knockout elements in the design, print over other elements; color overprinting color. This creates a transparent-like look, but is not transparent.

Overprinting is mainly used to create a third color and is common when printing spot colors. It is found in poster design, and collateral that has been screen printed.

In Figures 2 - 4, you notice there is no knockout. In Figure 1 the text is green, because the blue text in Figure 3 prints over the yellow background of Figure 2.
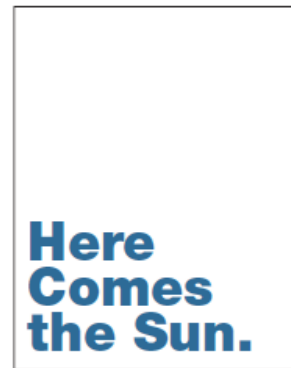

Figure 1	Figure 2	Figure 3	Figure 4
Overprinted Image	PMS 109 plate	PMS 295 plate	PMS 188 plate
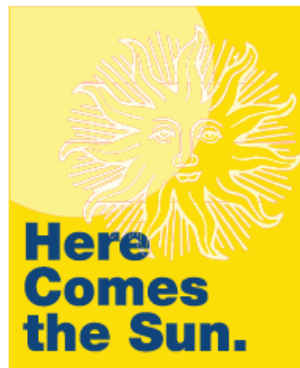
TRANSPARENCY:

When a design element opacity is adjusted so that the design element below it is visible to some extent.

This is not overprinting, because transparencies are normally used in design that is printed in process color.

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The figure to the right, is a good example of what a transparency does at times. Notice the blue circle and how it overlaps with the red and yellow circles. The red and blue overlap but it doesn't create purple; the yellow and blue overlap, but it doesn't create green. The yellow segment shows that blue is overlapping underneath, and the blue segment shows the red overlapping above.

In all four circles, because of they are transparent you can see the dotted pattern in the background.