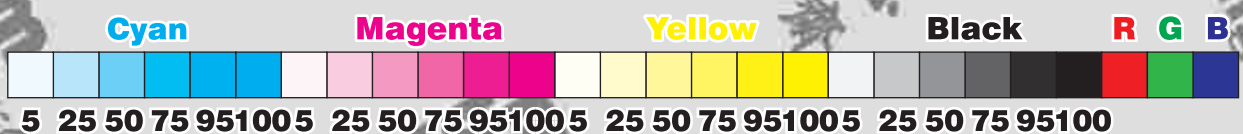
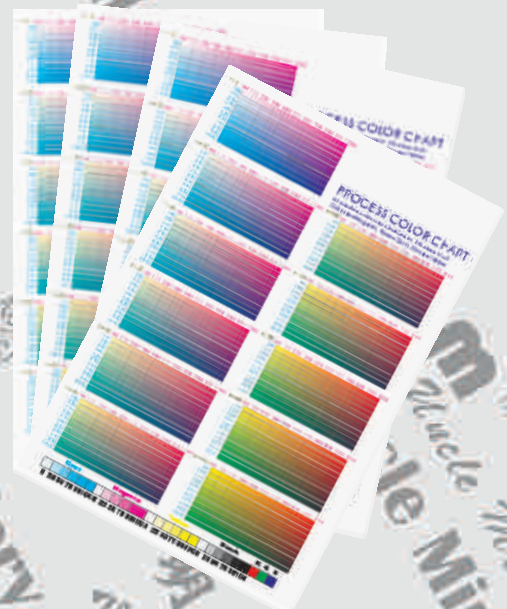
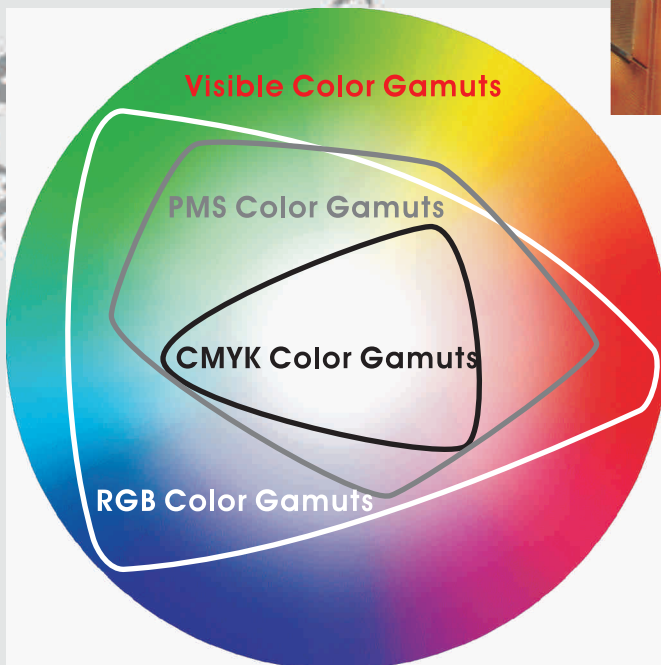


PROCESS COLOR SWATCH

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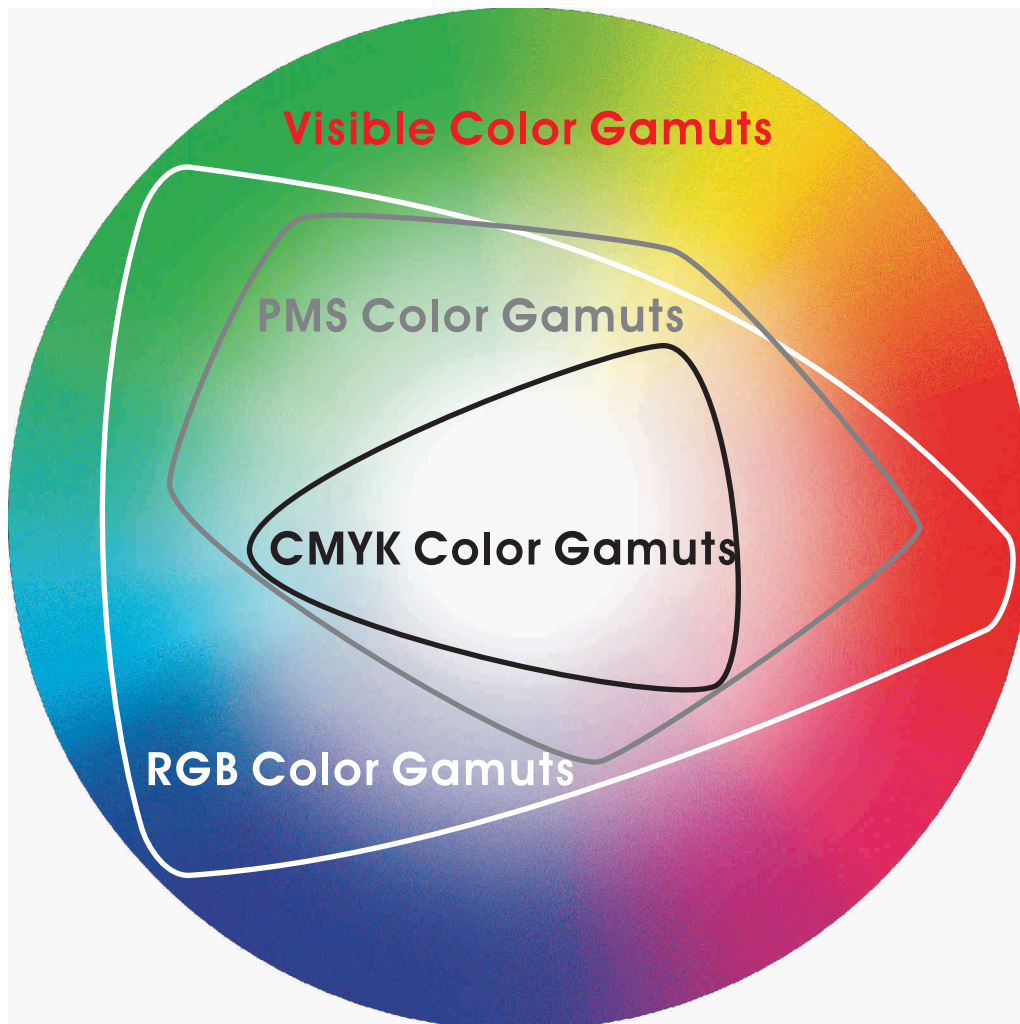
DISCLAIMER

1. The content provided in this color swatch is subject to change without prior notice.
2. The use of this pdf color swatch is at your own risk. There is no warranties whether expressed or implied for any damages that might arise from using the color swatch. Uncle Ming's Gallery assumes no responsibility for any loss of money, time or productivity, or damages in any way to any person(s) or computer hardware or software as a result of browsing, downloading or referencing from our web.
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4. Uncle Ming's Gallery is not responsible for the correctness of color displayed on your desktop. The color may vary on different models of monitors due to a lot of factors. The file is created in CMYK color mode so the variation of color resulting from conversion of different color mode is avoided. However, when it is displayed on your monitor, which is always in RGB mode, it may not be able to match the printing color.
5. Up to the very moment of time, inkjet printers of different brand names do not produce identical colors with the same input data. The image setter for film output is more reliable in maintaining the consistence of color printing of an artwork in CMYK color mode.

Basics in Color

色域

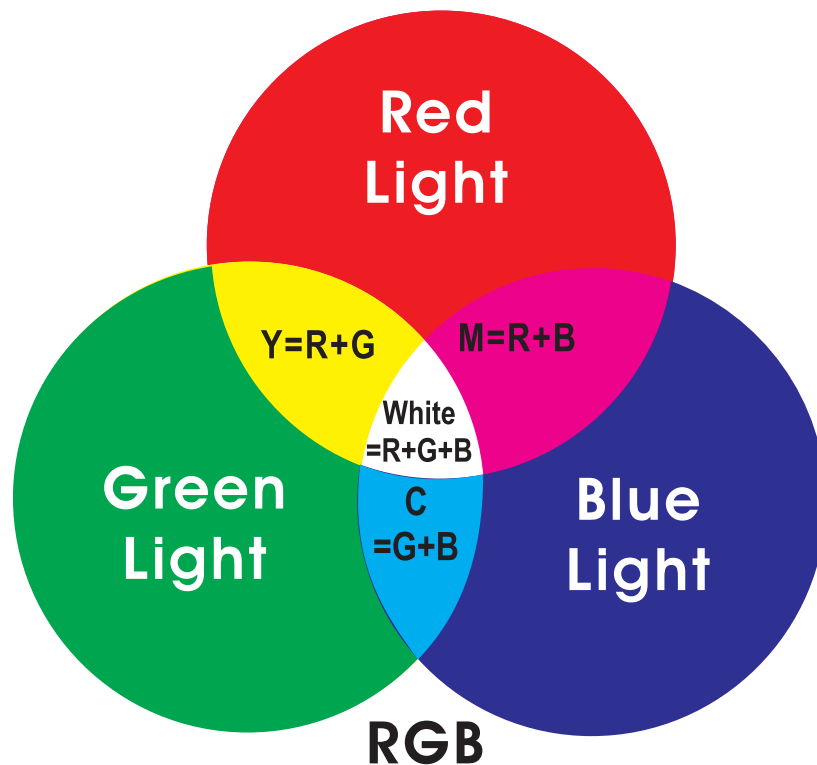
COLOR GAMUTS



By definition, color gamuts means the scope of color which can be reproduced using a certain output technology. As naked human eye is sensitive to 3 primary visible lights, namely **Red**, **Green** and **Blue**, output devices using **RGB model** is capable of displaying the greatest extent of color. However, it is applicable to light emitting devices like TV sets or Monitors only.

The common printing methods reproduces colors by screening the light reflected from either the base on which the colors are printed or the pigment of color itself. The color gamuts is smaller than RGB model due to the loss and distortion in the process of reflection and filtration except for some PMS colors which can reflect a special section of the color spectrum that even goes beyond the color gamuts of RGB model.

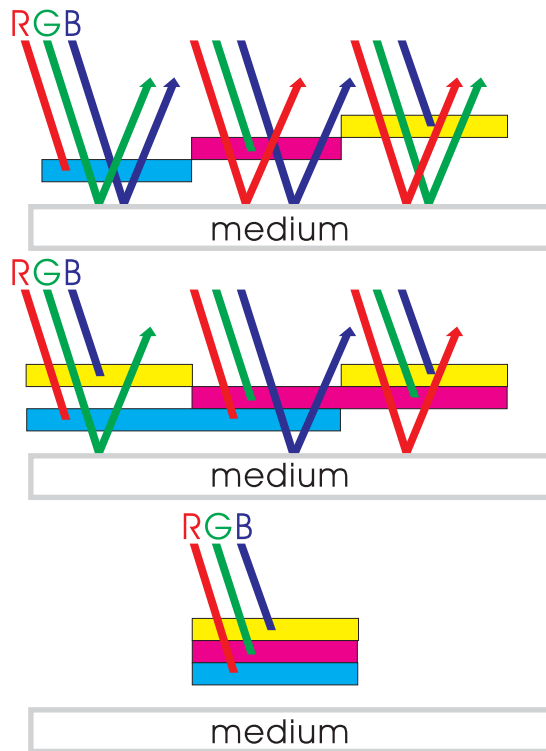
色彩模型
COLOR MODEL
Additive Color- RGB Color Model



RGB
Additive Color Model
(for luminous object)

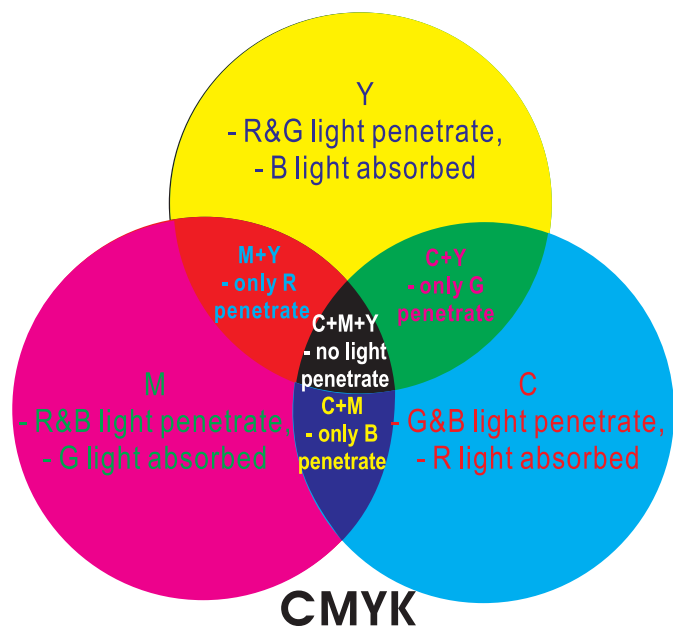
RGB color is applicable to light emission devices like TV or monitor which reproduce the color by mixing matrix of light emission dots in Red, Green and Blue together to form a specific color in human naked eyes. It is called additive color because all colors are the mixture of these 3 primary colors. It also produces the greatest color gamut among all available color models except PMS color like gold, silver or some specific material. Experienced Artists should be careful in using RGB model in the process of creation or it would be misleading to their clients and result in dispute over the color correctness of printed matter with respect to the preview image on monitor.

Subtractive Color- CMYK Color Model



Printed matter cannot emit light; it reflect light from luminous light source only. A traditional painter may apply different colors on his palette to his canvas or paper with paint brush. Nevertheless, printing too many colors on media is not feasible from both the economic and technical point of view. The current CMYK printing method use subtractive color. All colors are reproduced by screening the light (supposed to be white) reflected from either the base on which the colors are printed. The Color pigment of the 4 process color, C,M,Y and K work as filter which "subtract" one primary color from the white light respectively. The above diagram

illustrates how the system works. Overlapping different color ink may screen away unwanted primary color from the reflected light. This method only reproduced a smaller color gamuts compared with RGB or PMS color model.



CMYK
Subtractive Color Model
(for reflective object)

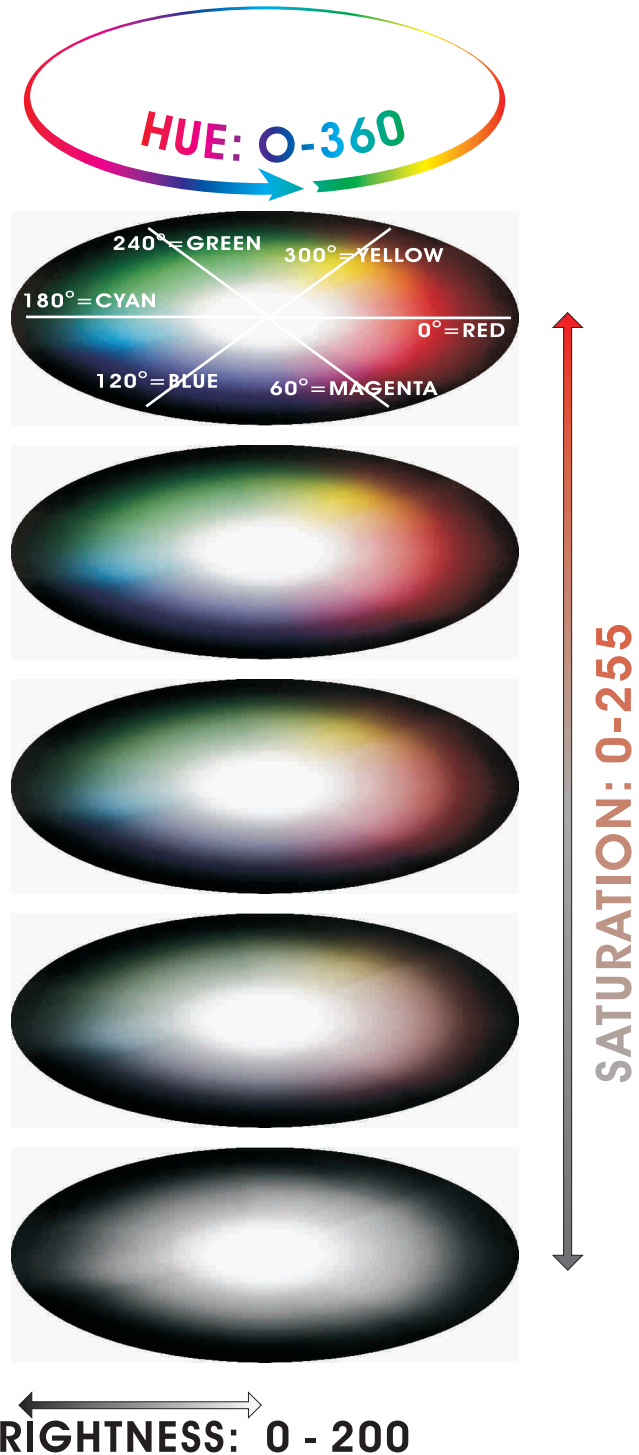
HSB Color Model

This model defines color by "Hue", "Saturation" and "Brightness".

Hue represented by the relative location of in the color wheel. For instance, if zero degree represent "Red", Magenta, Blue, Cyan, Green and Yellow are 60, 120, 180, 240, 300 respectively. Changing the Hue means shifting the color round the color wheel.

The second property of color is saturation which refers to the intensity of color. It ranges from 0 (i.e. grey) to 255 (i.e. fully saturated color).

The third property is brightness which represent the lightness or darkness of a color. As illustrated in a 3-dimensional model as shown in the diagram, the changes of the three properties of color are visualized by a column of color wheels. This color model is useful in tuning color temperature and brightness especially on TV or monitor.



Spot Color & PMS (Pantone Matching System)

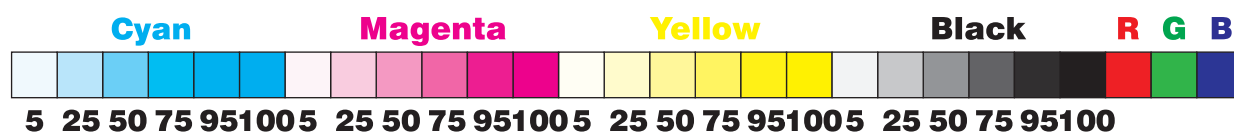
Sometimes the CMYK process colors cannot match a specific color for demanding print job. Spot color will be used. The most renowned spot color system is Pantone Matching System (PMS), which is a trademark system of over thousand colors identified by a unique color code. Every color is a premixed ink according to the formula provided by the vendor of PMS.

色彩轉換

COLOR CONVERSION

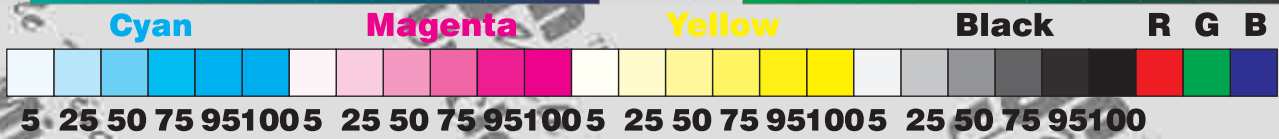
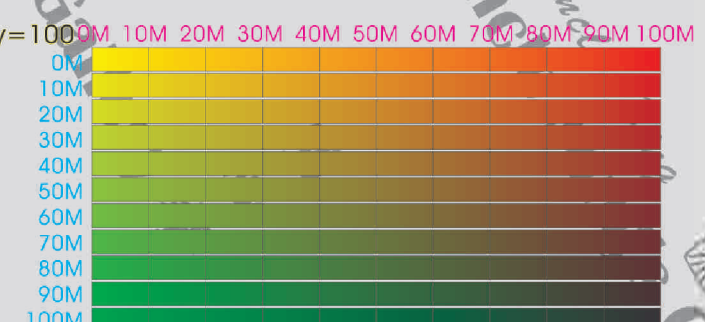
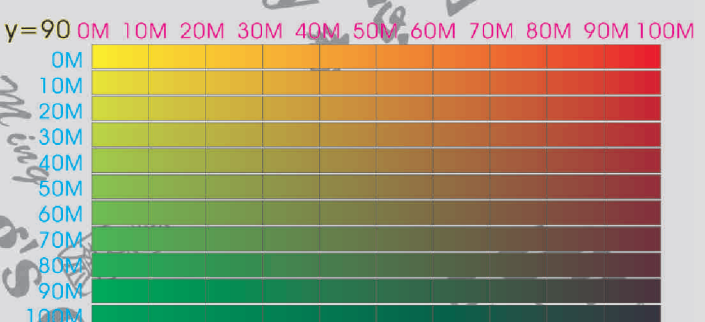
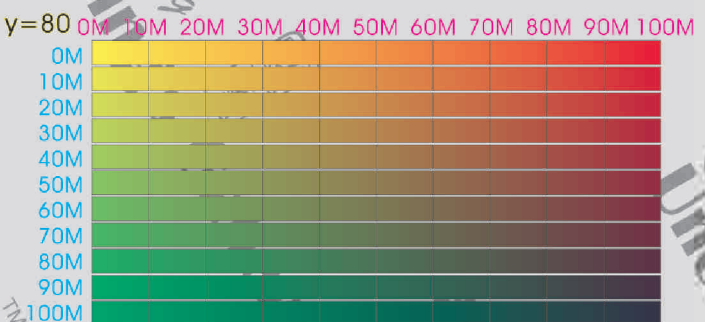
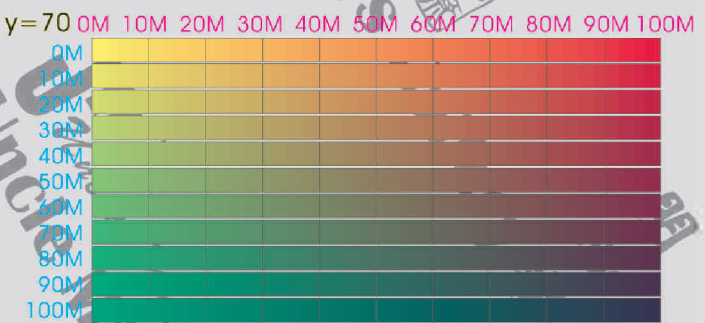
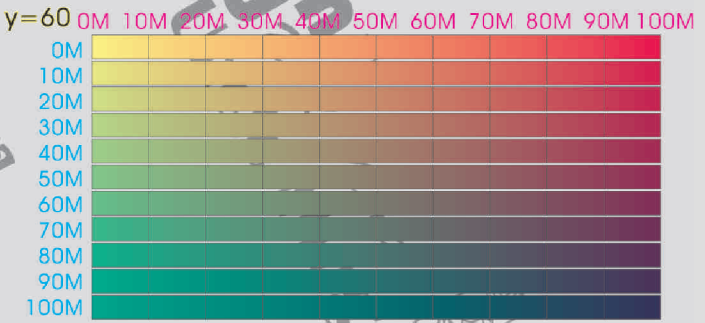
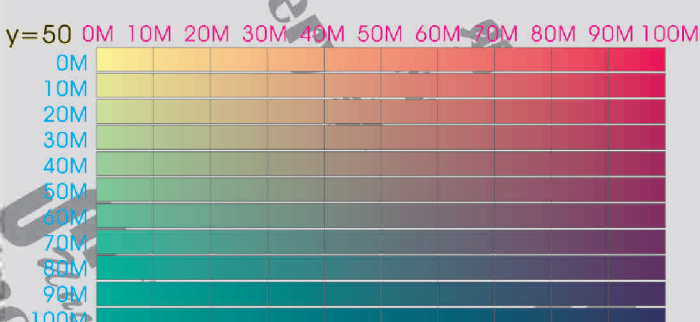
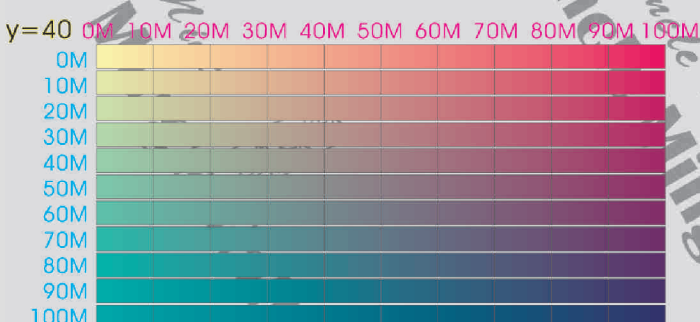
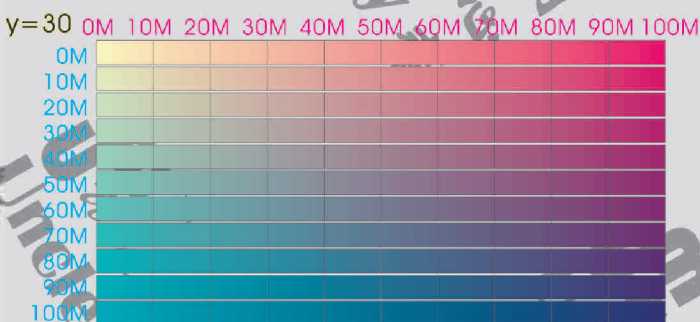
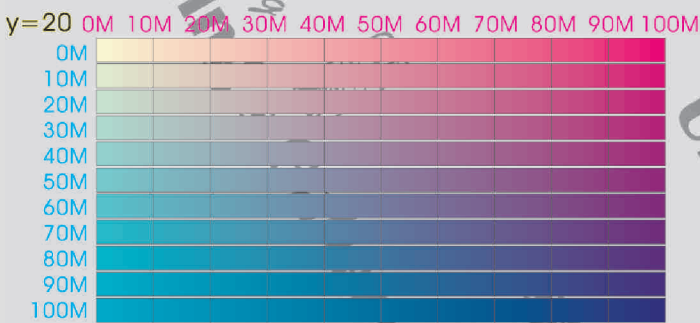
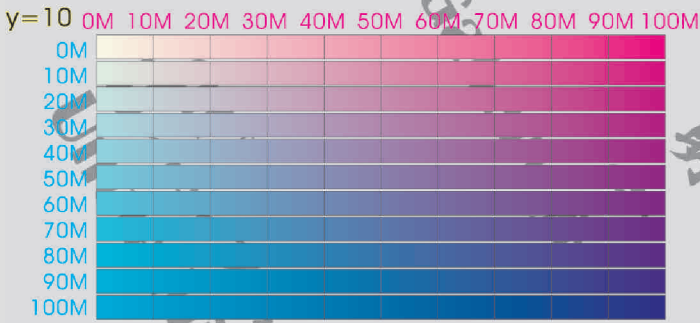
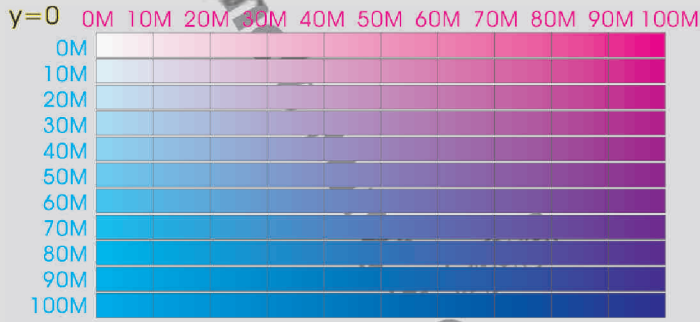
In the absence of a common algorithm or formula for the conversion of different color models, all digital artworks created for printing purpose should be converted into CMYK model before they are sent to output devices. A significant range of RGB colors or PMS color are not printable as they go beyond the color gamuts of CMYK color model.

Color Swatch



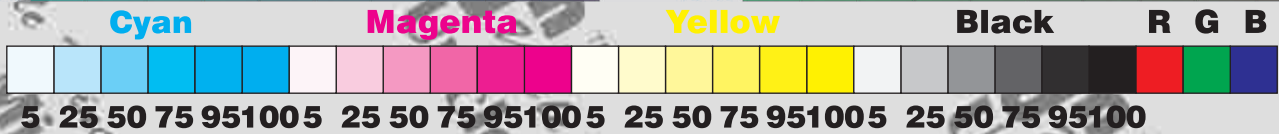
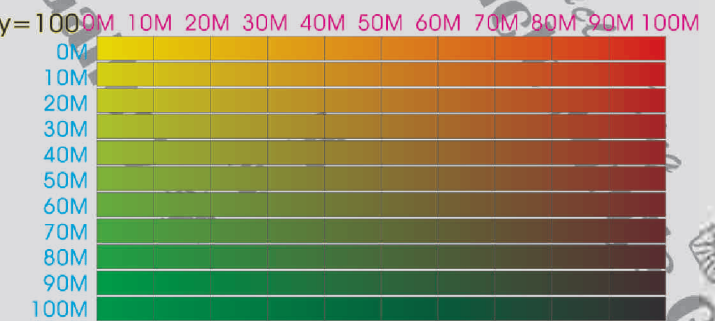
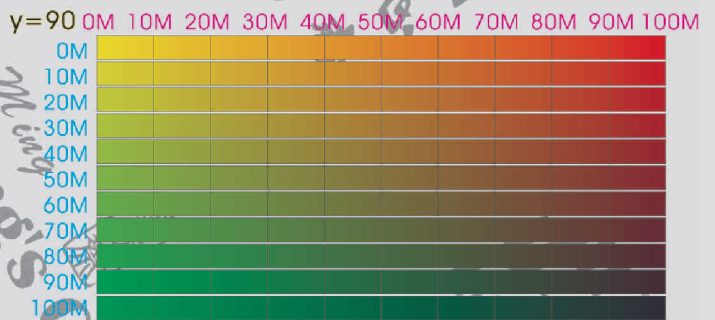
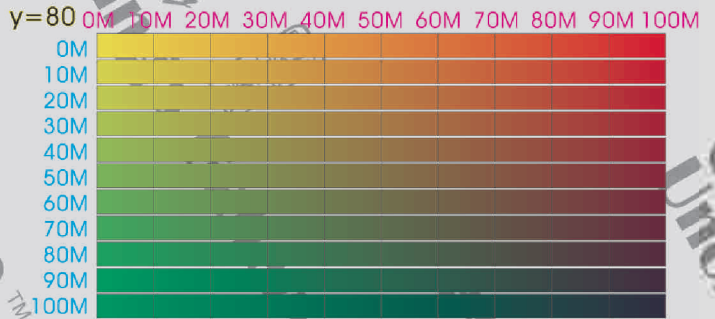
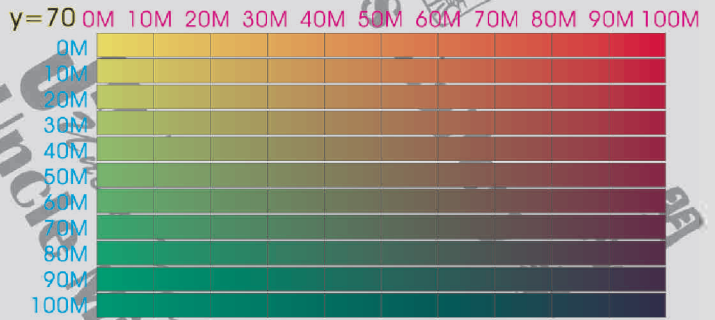
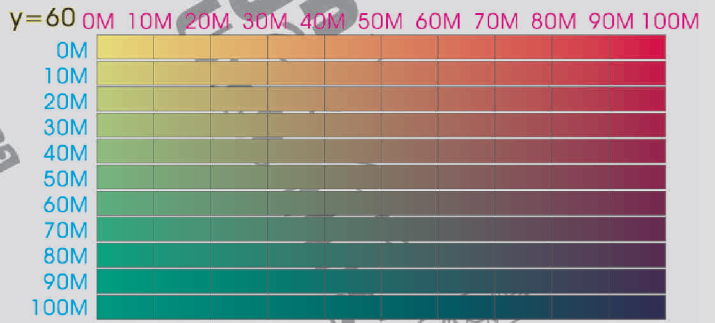
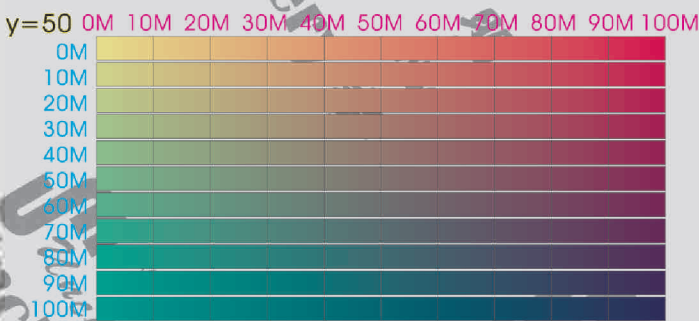
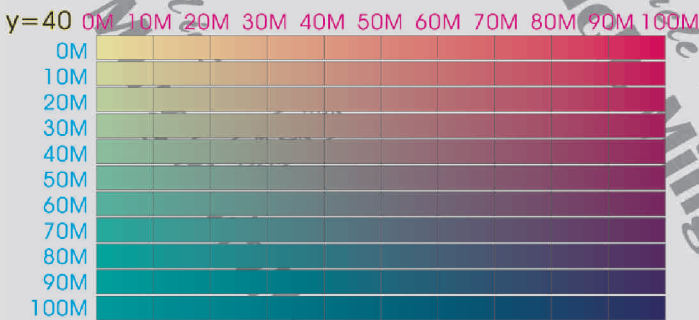
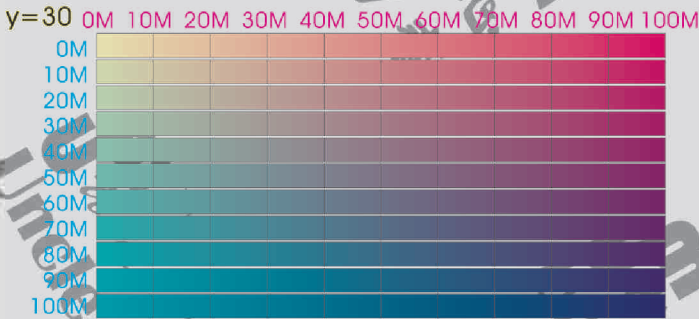
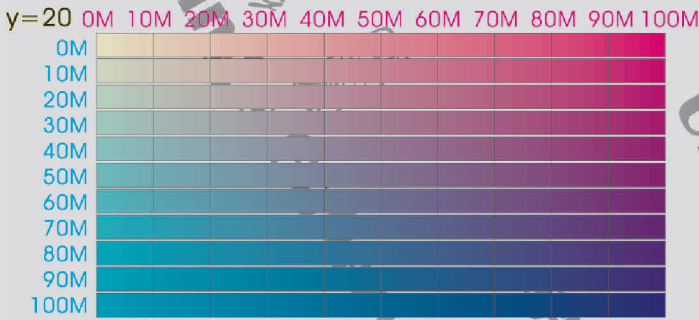
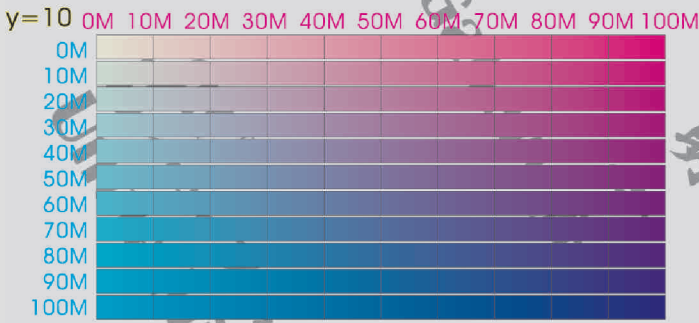
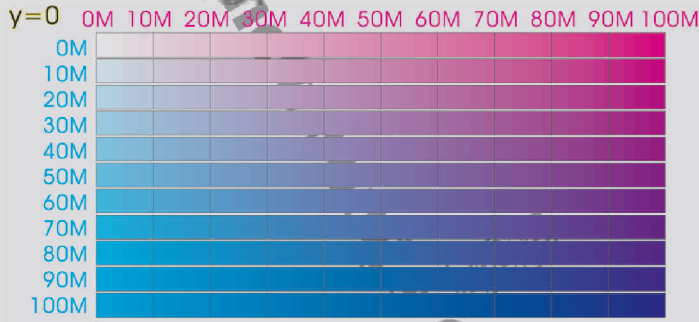
PROCESS COLOR CHART

All possible color combinations in 10% steps: K=0
 Columns=Magenta, Rows=Cyan, Group=Yellow



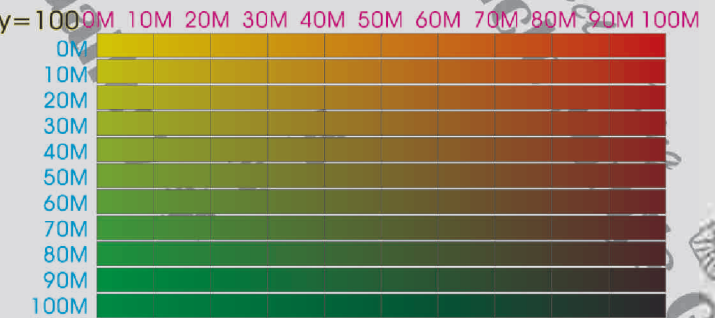
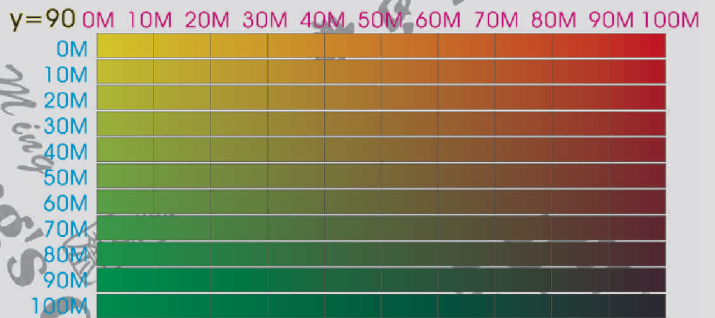
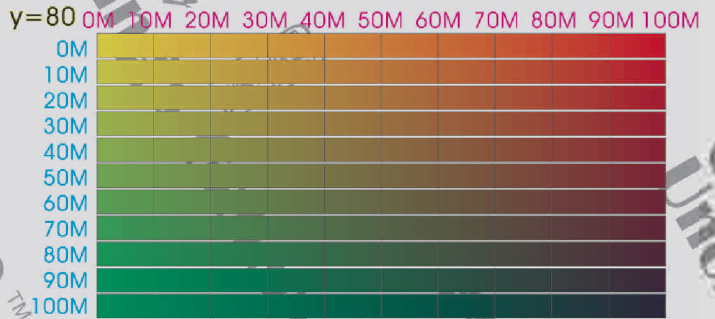
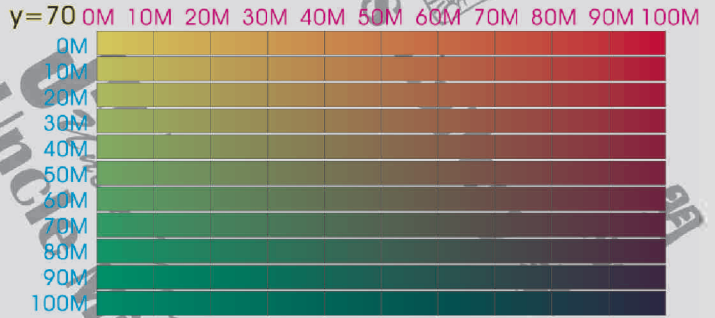
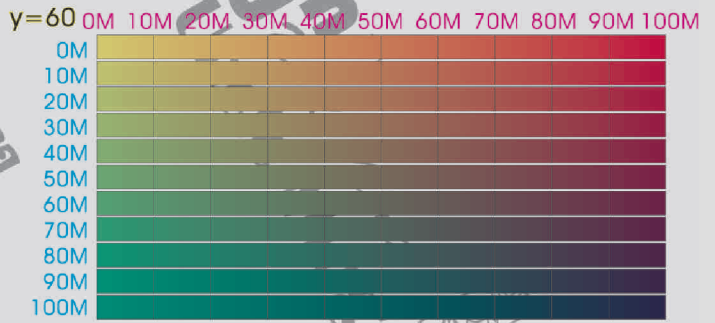
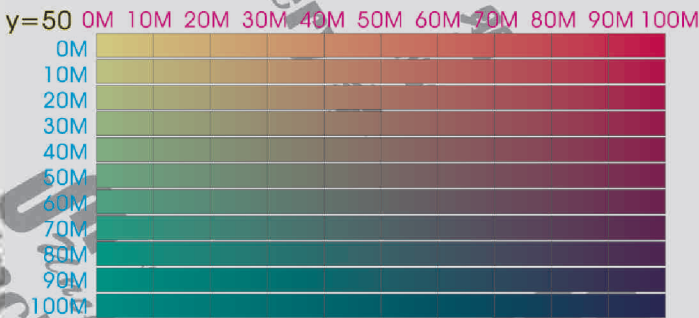
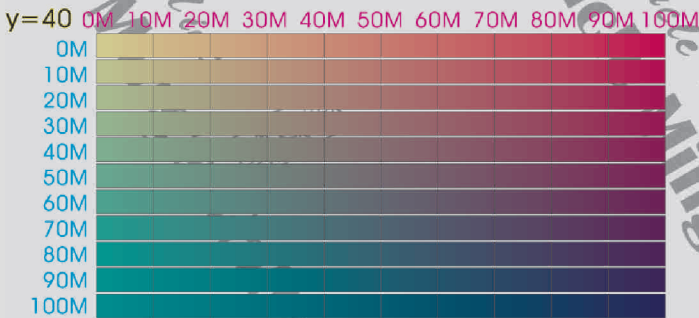
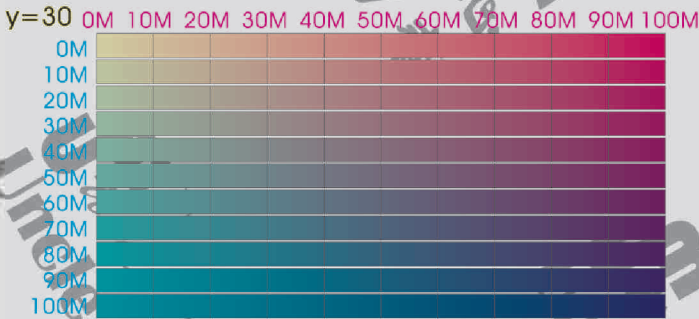
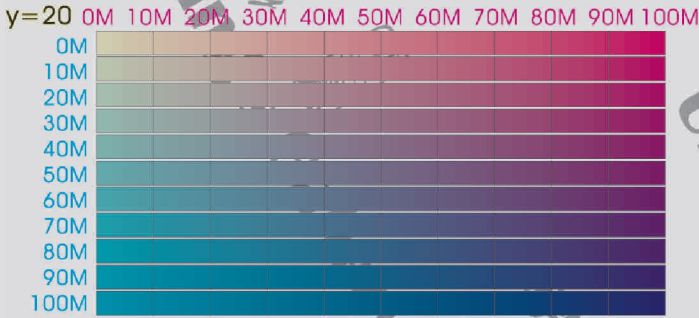
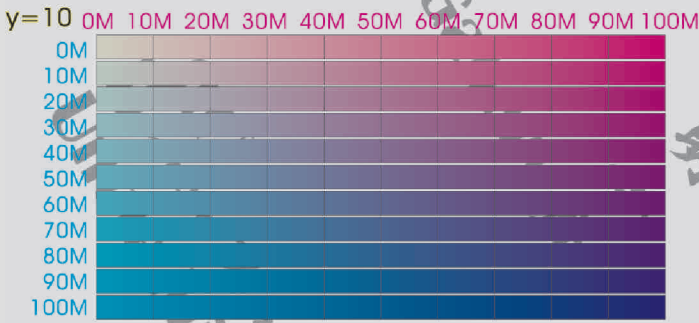
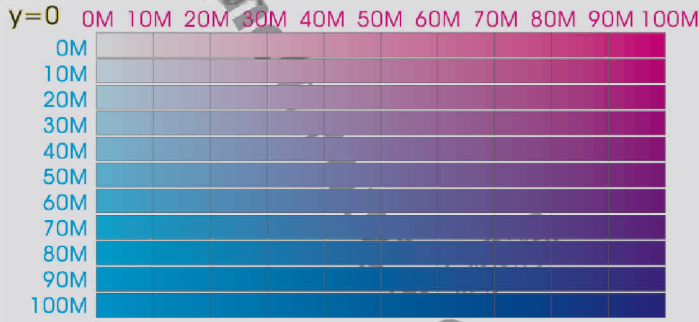
PROCESS COLOR CHART

All possible color combinations in 10% steps: K=10
 Columns=Magenta, Rows=Cyan, Group=Yellow



PROCESS COLOR CHART

All possible color combinations in 10% steps: K=20
 Columns=Magenta, Rows=Cyan, Group=Yellow



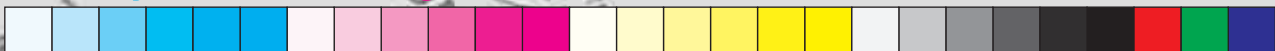
Cyan

Magenta

Yellow

Black

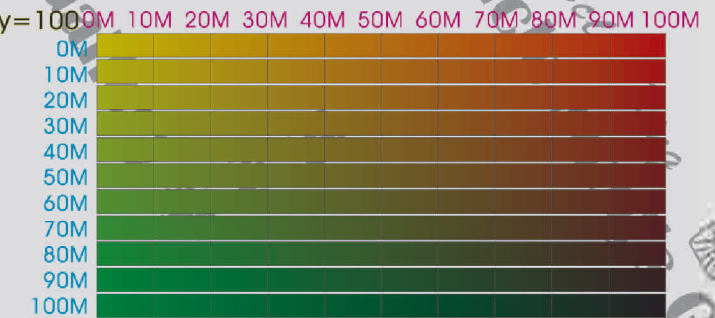
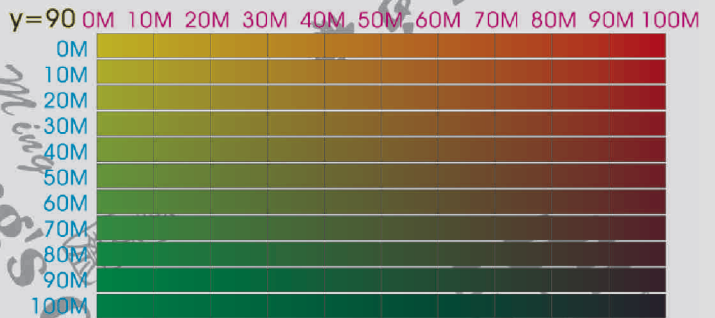
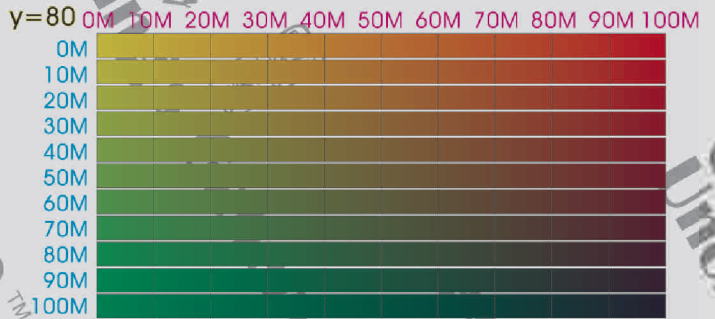
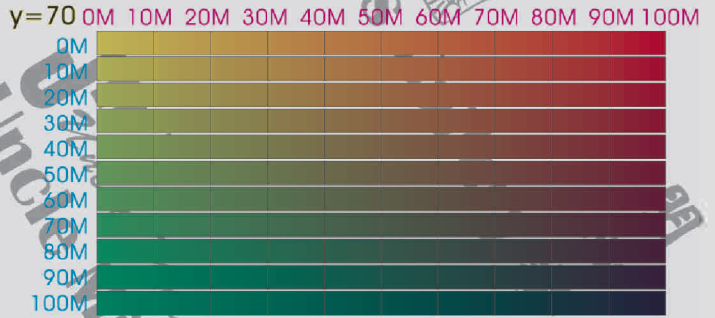
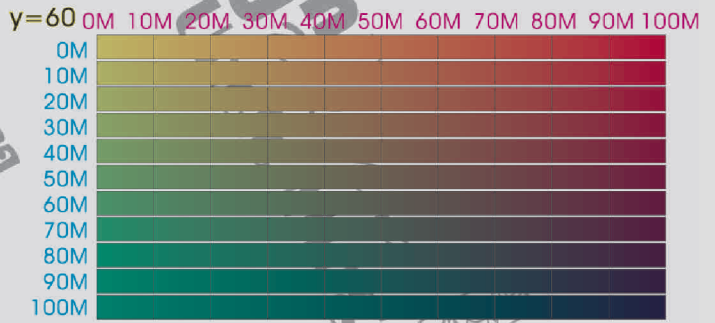
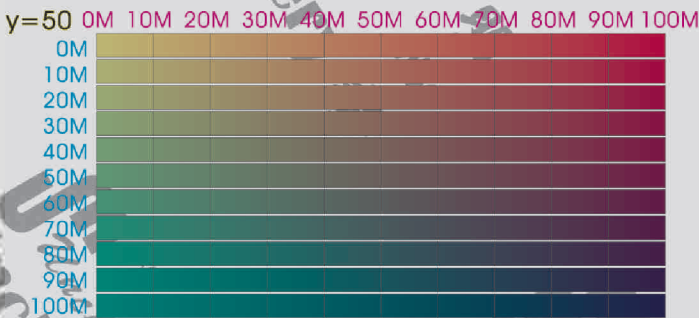
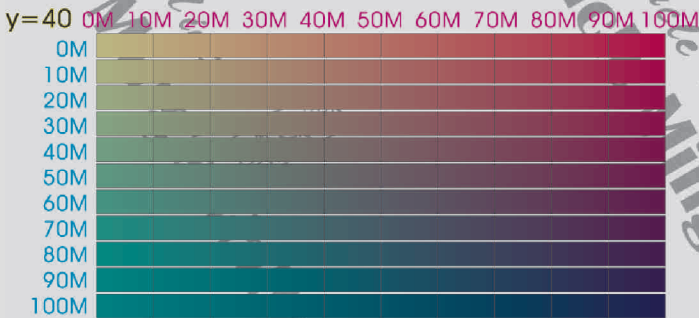
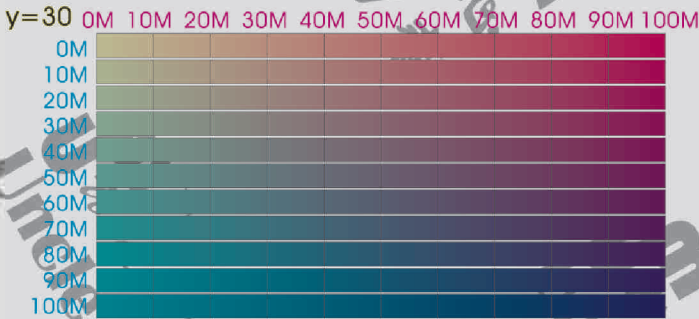
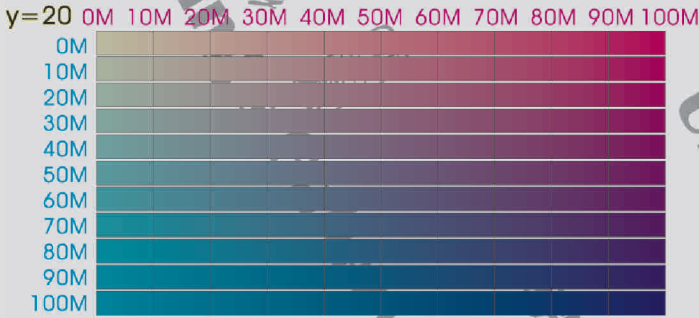
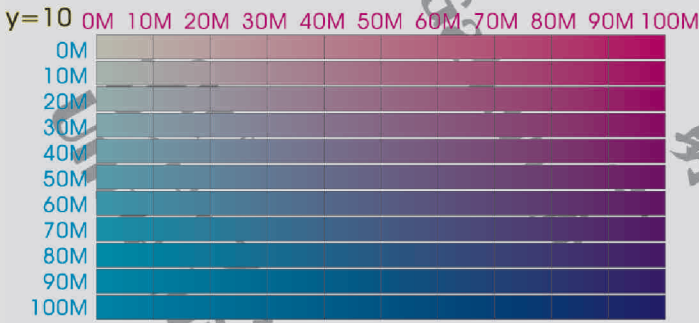
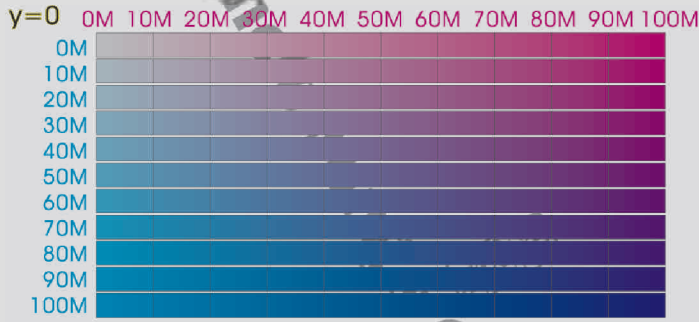
R G B



5 25 50 75 95 100 5 25 50 75 95 100 5 25 50 75 95 100 5 25 50 75 95 100

PROCESS COLOR CHART

All possible color combinations in 10% steps: K=30
 Columns=Magenta, Rows=Cyan, Group=Yellow



Cyan

Magenta

Yellow

Black

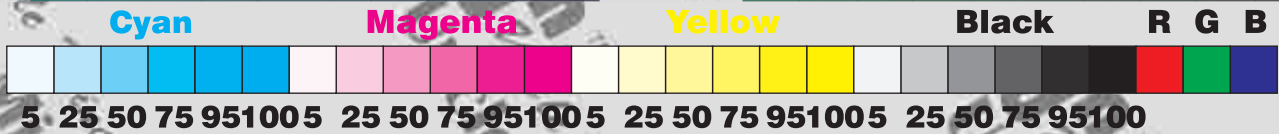
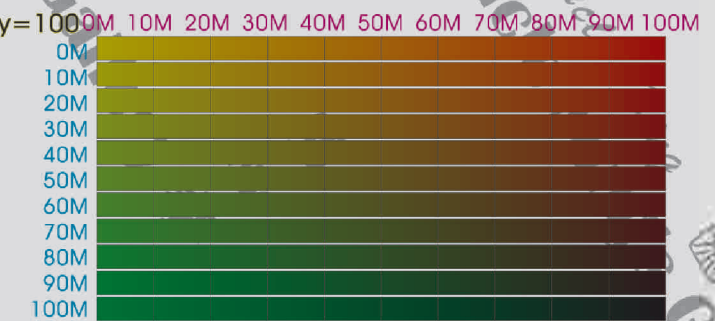
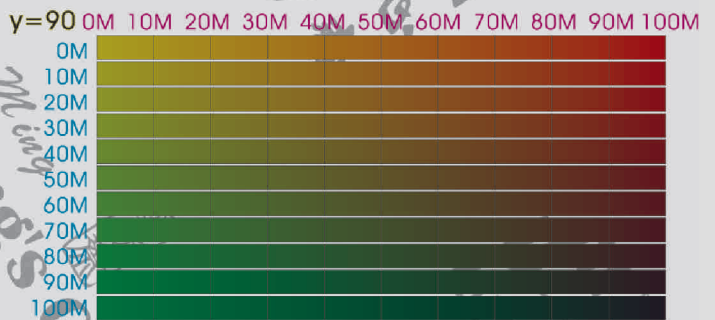
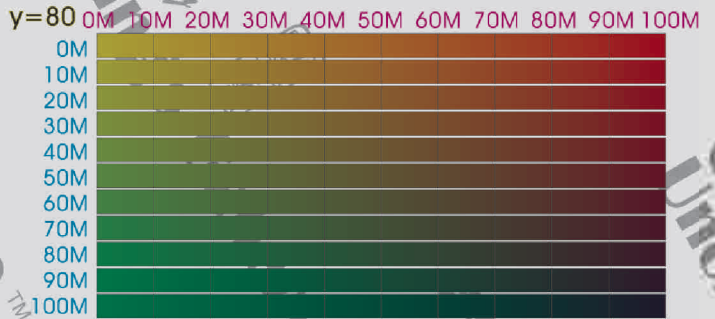
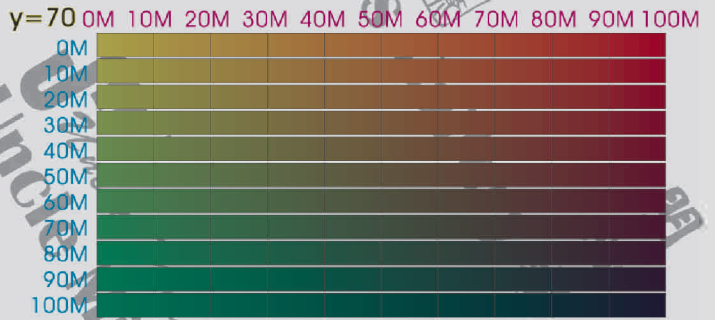
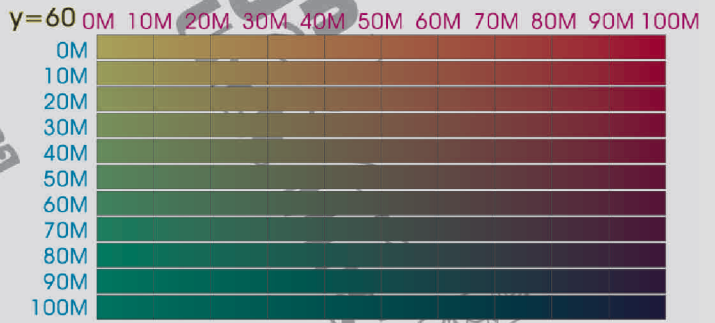
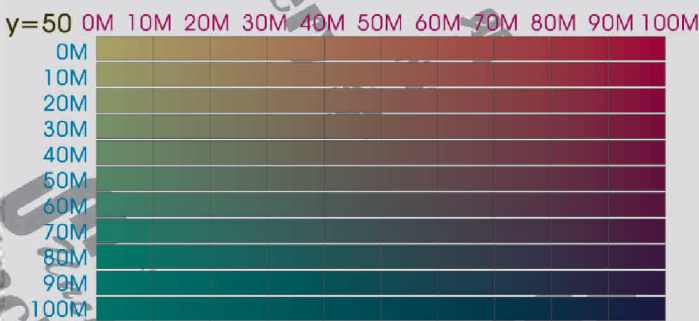
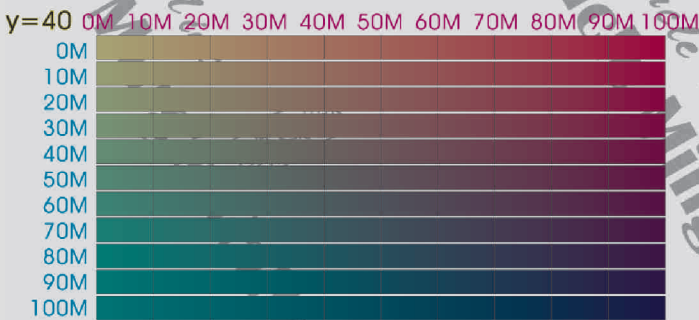
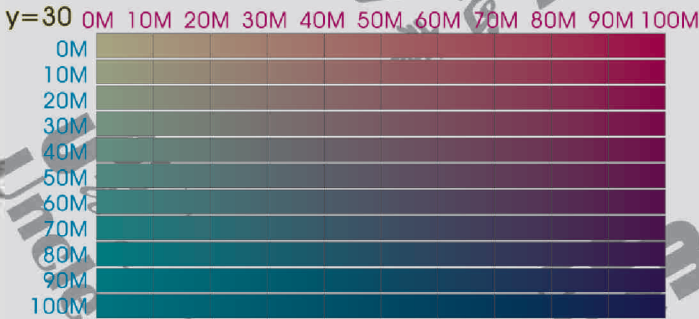
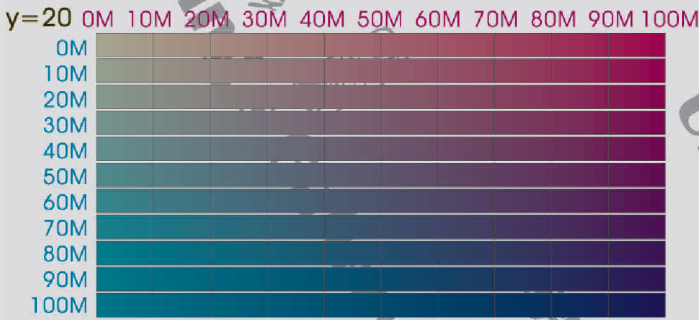
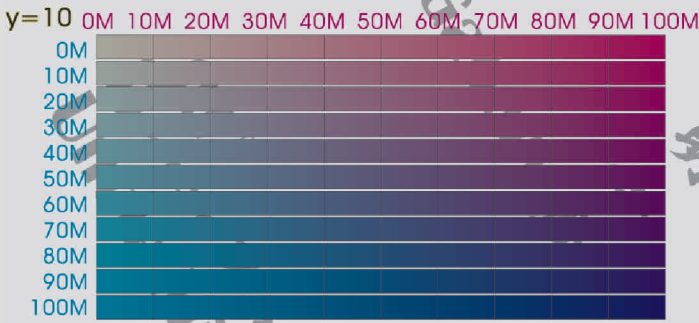
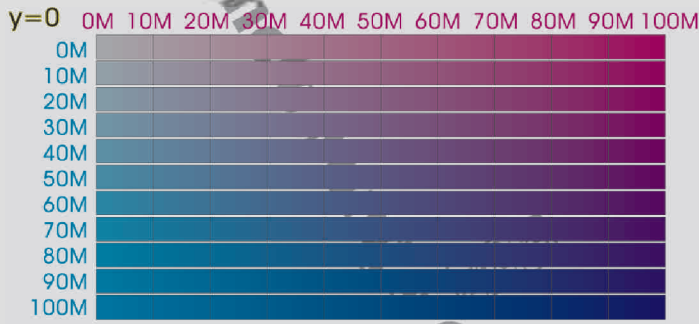
R G B



5 25 50 75 95 100 5 25 50 75 95 100 5 25 50 75 95 100 5 25 50 75 95 100

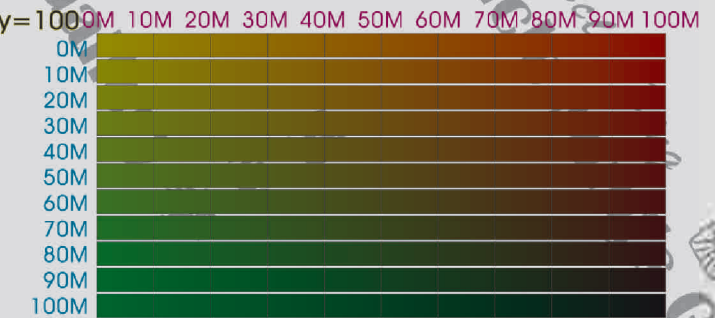
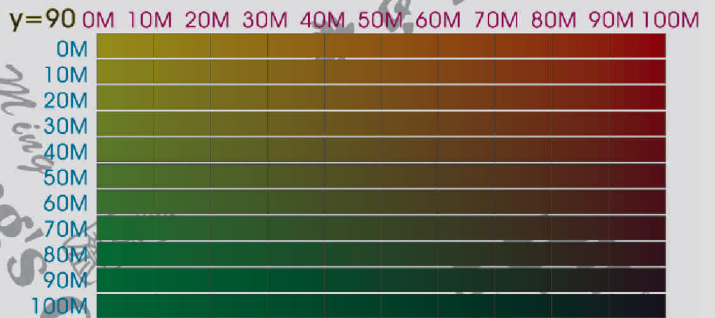
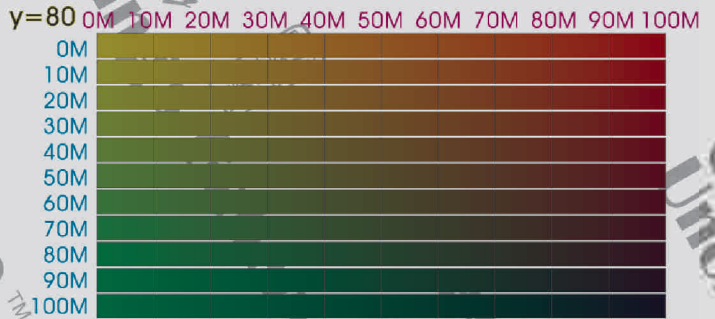
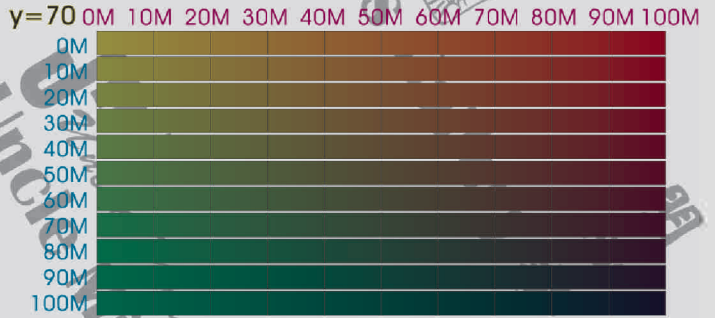
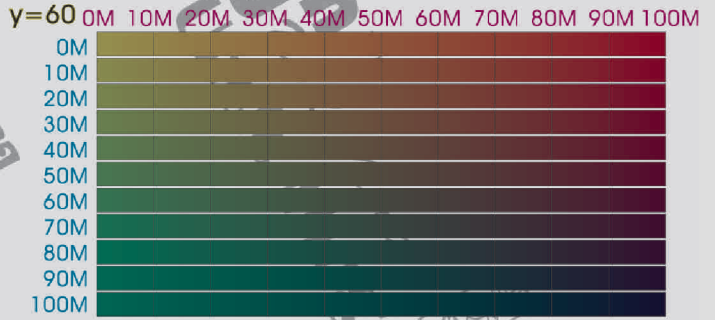
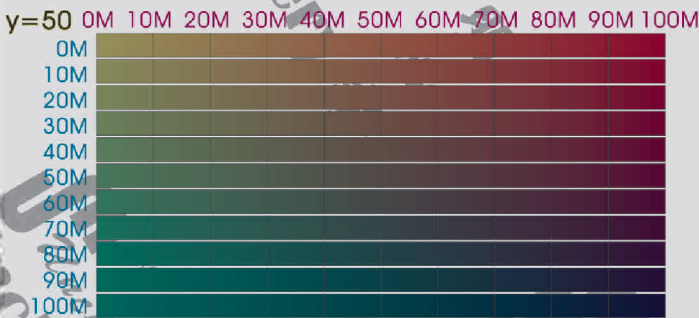
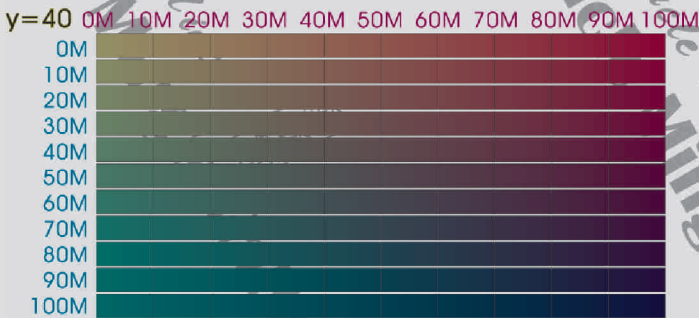
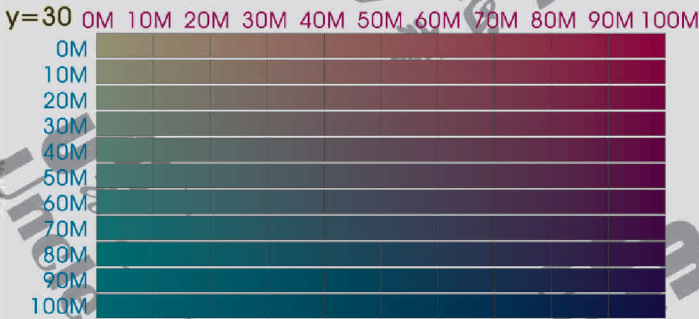
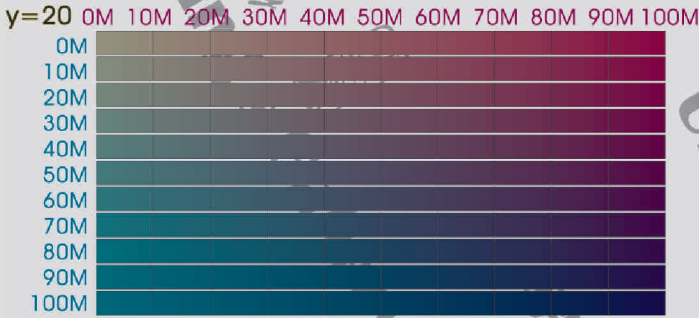
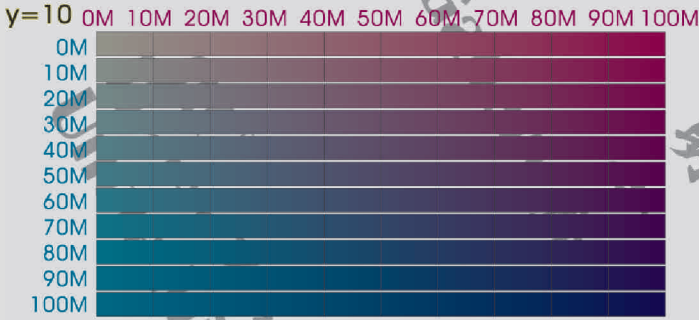
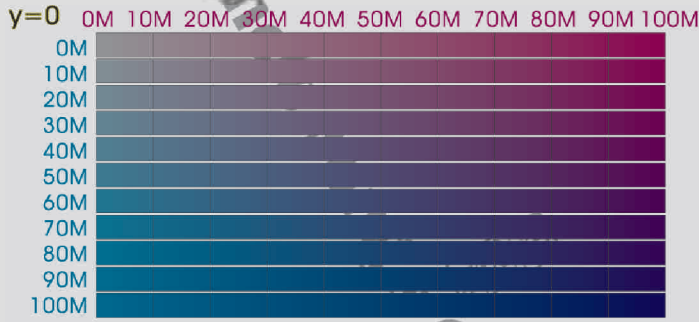
PROCESS COLOR CHART

All possible color combinations in 10% steps: K=40
 Columns=Magenta, Rows=Cyan, Group=Yellow



PROCESS COLOR CHART

All possible color combinations in 10% steps: K=50
 Columns=Magenta, Rows=Cyan, Group=Yellow



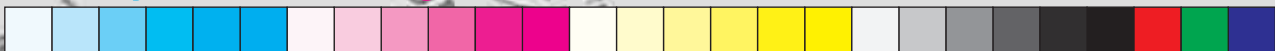
Cyan

Magenta

Yellow

Black

R G B



5 25 50 75 95 100 5 25 50 75 95 100 5 25 50 75 95 100 5 25 50 75 95 100