

chromafile version 1.0

Introduction to Chromafile

Chromafile has a library of simulated paint colours for use on screen. It is a new palette of paint-colour mixtures to add to your existing options with RGB and CMYK colour. From Chromafile's starting palette of eleven colours (hues) plus black and white, a swatch palette of over 1200 colours is available for use with Photoshop and other software applications, such as Adobe Illustrator, Freehand and Painter.

Creating colour mixes with paints

Mixing pigment colours is basic to painting and to our understanding of colour.

With paints, new colours are produced from combinations of two or more colours e.g. yellow and blue produce a green as the mid - colour in a progressive mix (Fig.1).



Fig.1

Creating colour mixes in Imaging and Painting programs

Programs like Adobe Photoshop and Painter can generate a mixture of two 'computer' colours by using the gradient control in the toolbar. This blends one colour progressively to another (Fig.2).



Fig.2

The mid-colour produced by the Photoshop gradient control is different to the mid-colour produced by mixing paints, e.g. with (warm) yellow and blue as parent colours, the Photoshop gradient tool does not produce a green anywhere along its path, as seen in Fig.2.

For comparison, colours are shown in step form. Our example shows the simulated paint colour mixture (Fig.3 top) and the mixture created in Photoshop (Fig.3 bottom).



Fig.3 top & bottom

Red and Green paint mixture produces a near neutral mid-colour (Fig.4 top), significantly darker than the Photoshop gradient (Fig.4 bottom). A characteristic of paint is that two colours of equal value will produce a darker mid-colour.



Fig.4

Orange and Ultramarine Blue paints produce a greenish mid-colour (Fig 5 top), quite different to the Photoshop Gradient mid-colour (Fig. 5 bottom) which shifts to red and is considerably lighter.



Fig.5

Mixing Black and White with paint colours causes a hue shift as well as the intended value change e.g. a mixture of white paint with magenta produces a violet shift in the mid-colour (Fig 6).



Fig.6

When yellow is mixed with black the mid-colour is greenish, demonstrating the blue effect in black pigment (Fig.7). When these mixtures are compared to the Photoshop gradients there is a discernible colour difference.



Fig.7

Why can't Photoshop simulate paint mixing?

Colour for computer programs is organised around a conventional colour space.

Imaging programs like Adobe Photoshop utilise the **Lab** colour space.

Fig. 8 shows a schematic arrangement of **Lab** colours on three axes in three spatial dimensions:

On one plane lie two axes:

Yellow to Blue (+**b** to -**b**)

Red to Green (+**a** to -**a**)

The third axis **L** is perpendicular to the a and b axes and represents the value from 0 (black) to 100 (white). Any colour can thus be located by reference to three coordinates: **L**, **a** and **b**.

The colour circle (Fig.9) shows one slice through the **Lab** colour space. A gradient from yellow to blue in Photoshop is a straight line passing through neutral grey. The path of the 'paint' mixture follows a curve which bends into green territory.

Fig.10 shows the difference in step form, with the Chromafile paint steps at the top and the Photoshop steps at the bottom.

Chromafile uses a method by the Photoshop gradient between two colour is curved to follow the paint colour mixtures in both hue and value.

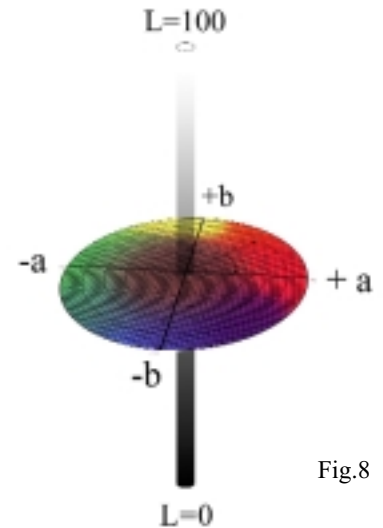


Fig.8

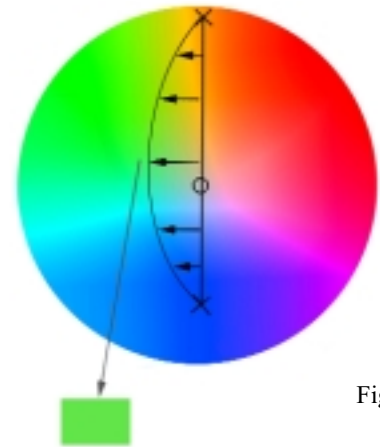


Fig.9



Fig.10

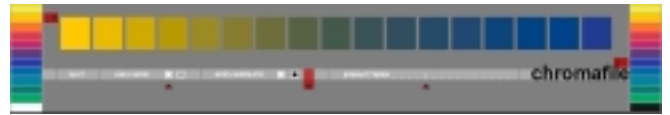
Chromafile CD Contents

1. Chromafile v.1.0 Interface

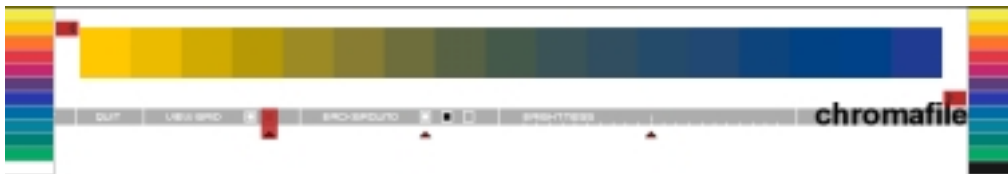
The Chromafile interface presents graduated mixtures of the eleven colours plus black and white and allows instantaneous viewing by clicking on the colour scale at either end of the interface:



The background can be changed to black or grey:



The colours can also be viewed butted together:

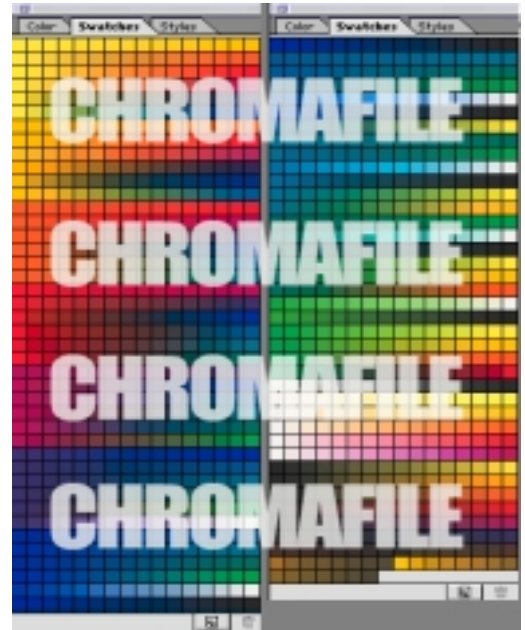


2. Swatch Palette of 1046 colours.

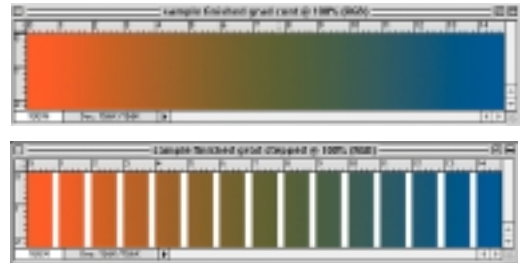
The number of steps for each mixture is 16 and the colours are grouped in rows of six. They follow on from each other in the order of the colour circle.

A particular colour (or mixture) can be found by identifying either of the two parent colours.

The colour swatches can be placed permanently in the Photoshop Swatch folder and loaded from the 'Swatches' Dialog Box.



3. Gradient Files - the entire palette of simulated paint gradients can be stored in the Photoshop folder. Any colour on the gradient can be spot sampled and a mask can be switched on, to view the colours as steps.



4. Mixing Template is used to create new gradients.

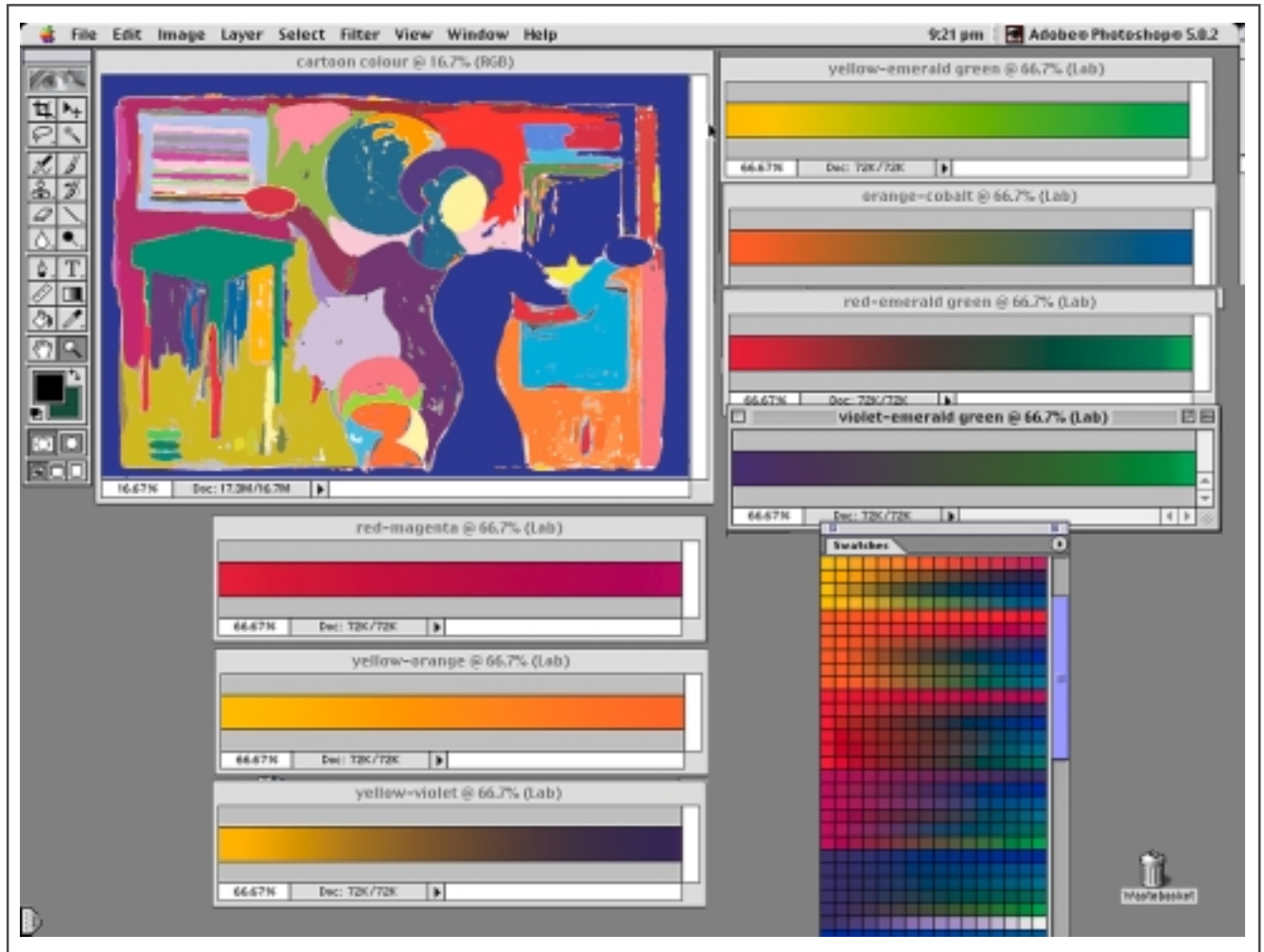
If paint mixing rules are followed, new paint colour gradients can be created.

For example, a gradient between a yellow-violet mixture and white mixed with yellow to produce low chroma yellows of a light value.



5. Colour Examples

Any colour can be opened and sampled from either the swatch palette or gradient file and viewed alongside created art work.



6. About Colour

A basic colour guide for use with Chromafile that illustrates Terms and ideas commonly used in reference to paint colour.

Selected examples from a ten page file:

Colour (also **Hue**)

A quality of visible phenomena distinct from form, light and shade.



Hue

That attribute to which colours may be described as red, yellow, blue, green, etc. Red-orange denotes a hue equally resembling red and orange.



Value

That attribute which measures variation among greys, refers to the lightness and darkness of a colour. Any hue can vary in value, red can become light pink or dark maroon.



Chroma

That quality which embraces hue and saturation together.



Colour Wheels

Colour Wheel A uses analogous gradients of 11 hues to produce a 48 step colour wheel.
Colour Wheel B uses the three primaries to create all the colour gradients.

Compare the two colour wheels.



Colour Wheel A



Colour Wheel B

Colour Change (also Simultaneous Contrast)

When two colours are placed together there will be an interaction and each will be enhanced or diminished. In some cases there will be a hue change.



Hence different colours can be made to appear similar and three colours can be made to appear as two.



These colour problems are familiar from colour courses, of which Albers' *Interaction of Colour* and Itten's *Elements of Colour* are the most widely known. These and other colour ideas can be studied in conjunction with Chromafile.