Technical Bulletin

Understanding colour and Colorplus®

Introduction

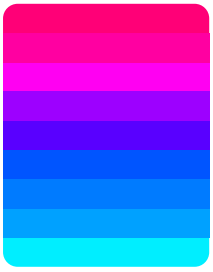
The one unique feature of every human is their fingerprint, so it can be easily used for identification purposes. We therefore conclude that your fingerprint is unique, no one in the world has the same set of ridges and lines that you have, not even your identical twin. This is due to your unique DNA structure.

The one unique feature of every Colorplus® colour is that they are unique, so lets talk colour.

Understanding colour

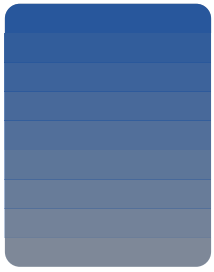
The technical terms concerning colour can be summarised in three main characteristics:

Hue



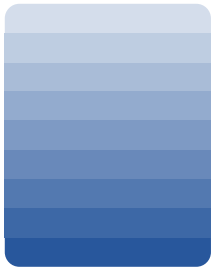
This is simply the response to “What colour is this?”. The answer can be red, blue, purple, or an infinite number of colours.

Chroma



This is the purity, intensity or saturation of a colour.

Luminance



This is the brightness or lightness of a colour.

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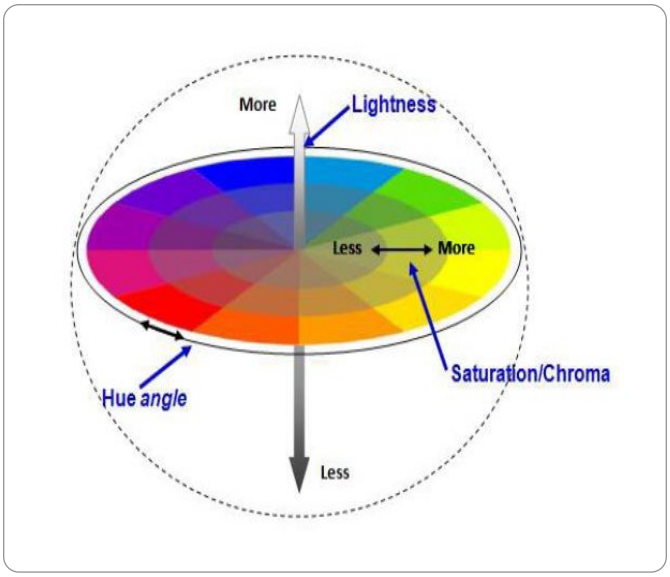


Diagram for hue, chroma and luminance

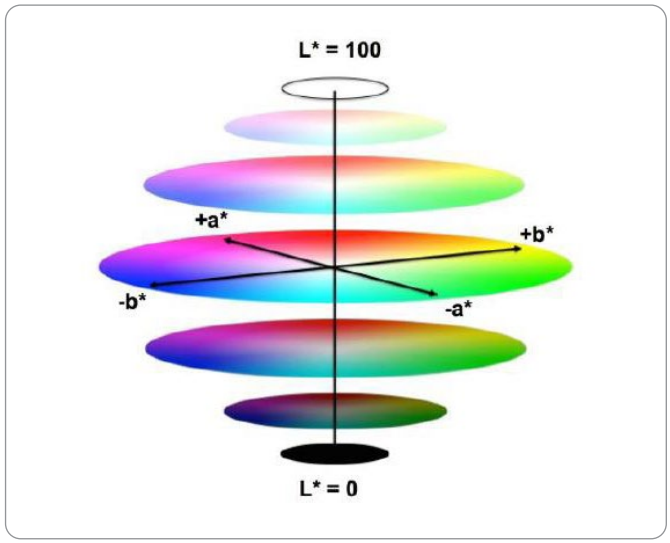
Combining these three characteristics we can obtain a beautiful picture of colour.

We have now identified the main characteristics of colour, that is we now know the DNA structure. The question that remains "How do you measure the colour fingerprint?".

Understanding the measuring of a colour (colour fingerprint)

In 1931, the Vienna based international standards body, the International Commission on Illumination (CIE: Commission Internationale d'Eclairage), devised a model, enabling the numerical description of all colors visible to the human eye.

This means that we are now able to measure the numerical values, that makes every colour unique.



The CIELAB Color system measures three numerical values as follows :

Value L*

The value L* measure the colour lightness

L = 0 is pure Black
L = 100 is diffuse White

Value a*

The value a* measures as follows:

Positive value a* tends towards Red
Negative value a* tends towards Blue

Value b*

The value b* measures as follows:

Positive value b* tends towards yellow
Negative value b* tends towards blue

So, the value L* related to the Luminance and the values a* and b* relates to the hue and chroma.

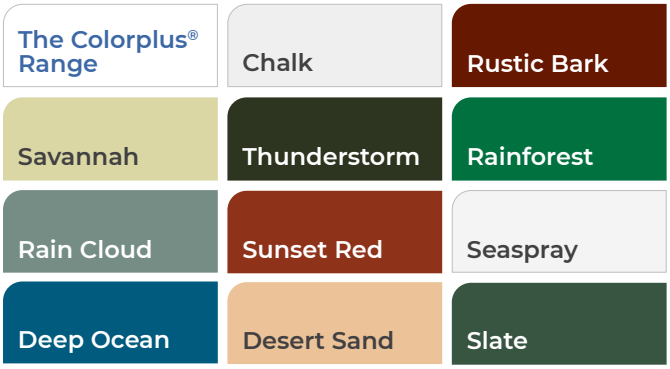
We have now reached the level of understanding of the colour DNA structure and able to measure every colours' fingerprint .

Why is it important to understand colour DNA and fingerprint?

The answer relates to RAL colour codes, many times we would like to compare a unique Colorplus® colour to a UNIQUE RAL colour code.

Since RAL codes are European colour matching system defined colours for paints, coatings and plastics; they are reasonably unique and can therefore differ from our Colorplus® range.

To assist in the comparison between RAL codes the table below compares the closest RAL colours to the current Colorplus® colours. It should be noted these are typical comparisons, only.



Colorplus® is available in the above colours.

RAL K5 classic codes

	Colour			Thermal properties		
Brochure	**RAL**	**Name**	**% Match**	**Total solar reflectance**	**Thermal emittance**	**Solar reflectance index**
Seaspray	9003	Signal White	85%	65%	0.85	78
Chalk	9010	Pure White	90%	68%	0.85	81
Savannah	1014	Ivory	80%	58%	0.85	68
Desert Sand	1001	Beige	50%	51%	0.87	58
Sunset Red	3009	Oxide Red	95%	34%	0.84	34
Crimson Red	3009	Oxide Red	90%	34%	TBA	TBA
Rustic Bark	8016	Mahogany Brown	95%	26%	0.83	24
Rainforest	6028	Pine Green	80%	30%	0.83	29
Emerald Green	6028	Pine Green	80%	35%	TBA	TBA
Pine Green	6011	Reseda Green	80%	18%	TBA	TBA
Deep Ocean	5001	Green Blue	80%	29%	0.83	28
Raincloud	7042	Traffic Grey	85%	32%	0.83	32
Slate	7012	Basalt Grey	85%	29%	0.88	30
Thunderstorm	7021	Black Grey	95%	25%	0.84	23
Coolgrey	7044	Silk Grey	75%	NA	NA	NA