

Lovibond® Colour Measurement

Tintometer® Group



Reflectance Glossary



Reflectance

Spectrophotometer

A spectrophotometer is a scientific instrument used to measure the intensity of light absorbed or transmitted by a sample as a function of the wavelength of light.

Colour Space

A colour space is a specific way of representing colours, where each colour is defined by a set of numerical values that represent its properties, such as hue, saturation, and brightness.

Hue

Hue refers to the dominant wavelength of light that the human eye perceives when looking at a colour. In other words, hue is what allows us to distinguish one colour from another, such as red, blue, or green.

Saturation

Saturation is a property of color that refers to the intensity or purity of a color. It describes how much of the color is present in a particular shade, relative to grey or white.

Brightness

Brightness, also known as value or lightness, is a property of color that describes how light or dark a color appears.

CIE Lab

Used to describe all colours visible to the human eye. It is a device-independent colour model, meaning that it is not tied to any device, such as a computer monitor or printer, but instead describes colours in terms of their perception by the human eye.

XYZ

It is a device-independent colour space, meaning that it is not tied to any specific display technology or printing process, and it is based on the human visual system's response to light.

Yxy

Designed to represent colours in a way that corresponds more closely to human colour perception.

LCh

LCH is a colour space that is based on the Lab colour space and is designed to make it easier to understand and work with colour. LCH stands for Lightness, Chroma, and Hue, which are the three main components used to define a colour in this colour space.

CIE LUV

LUV is designed to be a device-independent colour space that represents colors based on human colour perception.

Hunter LAB

Is a way to measure and analyze colour in a way that more closely aligns with human perception. The Hunter Lab colour space is based on the CIE Lab* colour space, but it has a slightly different formula for calculating the L, a, and b values.

Colour Difference Formula

The colour difference formula is a mathematical equation used to quantify the difference between two colours. The colour difference formula is used in various applications, such as colour matching, colour reproduction, and colour correction.

Observer Angle

The observer angle refers to the angle at which an observer views a color sample. In colour science, the observer angle is an important consideration because the appearance of a colour can change depending on the angle at which it is viewed.

The most used observer angles in colour science are 2° and 10°. The 2° observer angle is based on the average angle at which light enters the human eye, and it is often used in applications where precise colour matching is required, such as in printing and colour calibration. The 10° observer angle is used in applications where colour appearance is more important than precise colour matching, such as in the evaluation of colour samples and visual colour assessments.

Optical Geometry

Optical geometry refers to the arrangement of light sources, colour samples, and observers in a colour measurement system. Optical geometry is important in colour measurement because it affects the way that light is reflected from a colour sample and enters the instrument.

Measuring Aperture

The measuring aperture in a colour measurement system refers to the size of the area from which light is collected by the instrument. The measuring aperture is important in colour measurement because it affects the amount of light that is collected, and the size of the area being measured.

Colorimetric Index

A colorimetric index is a numerical value that describes a specific colour characteristic of an object or substance. Colorimetric indices are used in colour measurement and analysis to provide a quantitative measure of a colour property, which can be used for quality control, process control, and colour matching.

Whiteness Index (WI)

The whiteness index is a colorimetric index that measures the whiteness or brightness of a material compared to a standard white reference material. It is often used in industries such as paper, textiles, and coatings, where brightness is an important factor in product quality.

Yellowness index (YI)

The yellowness index is a colorimetric index that measures the degree of yellow colour in a material. It is often used in industries such as plastics, coatings, and textiles, where yellowing can be a sign of product degradation or ageing.

Titanium Index (TI)

The titanium Index is a measure of the colour and opacity of a paint film and is commonly used in the paint industry to evaluate the performance of titanium dioxide pigment in paints and coatings.

Metamerism Index (MI)

Metamerism Index (MI) is a colorimetric index that measures the degree of color difference between two samples when they are viewed under different lighting conditions.

Metamerism is a phenomenon in which two samples that match under one light source may appear different when viewed under another light source. This is because different light sources have different spectral distributions, which can cause colour differences to become pronounced.

Staining Fastness

Staining fastness is a measure of a material's ability to resist the transfer of colourants or other substances to other materials when they are in contact with each other. It is an important property for materials that meet other materials, such as textiles, leather, and paper, as staining can negatively impact their appearance and functionality.

Colour Fastness

Colour fastness is a term used to describe a material's ability to retain its original colour under various conditions such as exposure to light, washing, rubbing, and other environmental factors. Colour fastness is an important property for materials such as textiles, paints, and plastics, as it can affect their appearance, durability, and functionality.

Colour Strength

Colour strength is a measure of the concentration or saturation of a colourant in a material or solution. It is commonly used in the printing, textile, and paint industries to describe the intensity or vibrancy of color.

Opacity

Opacity refers to how much light can pass through colour, or how much it obscures what is behind it. Colours can range from completely transparent (allowing all light to pass through) to completely opaque (blocking all light).

Illuminant

Illuminant refers to the source of light that illuminates a scene or an object. It can be natural light from the sun, artificial light from a lamp, a computer screen, or any other light source. The illuminant plays an important role in colour perception, as it affects the way colours are perceived by the human eye.