

Figure 8
The Planckian locus and lines of constant correlated colour temperature plotted on the CIE 1931 (x,y) chromaticity diagram. Also shown are the chromaticity coordinates of CIE Standard Illuminants, A, C, and D65.

2.10 CIE Colour Rendering Index

The CIE colour rendering index measures how well a given light source renders a set of standard test colours relative to their rendering under a reference light source of the same correlated colour temperature as the light source of interest.

The reference light source used is an incandescent light source for light sources with a correlated colour temperature below 5000 K and some form of daylight for light sources with correlated colour temperature above 5000 K. The actual calculation involves obtaining the positions of a surface colour in the CIE 1964, U^*, V^*, W^* , colour space under the reference light source and under the light source of interest, correcting for any difference in white point under the two light sources and expressing the difference between the two positions on a scale that gives perfect agreement between the two positions a value of 100. The CIE has fourteen standard test colours. The first eight form a set of pastel colours arranged around the hue circle. Test colours nine to fourteen represent colours of special significance, such as skin tones and vegetation. The result of the calculation for any single colour is called the CIE special colour rendering index, for that colour. The average of the special colour rendering indices for the first eight test colours is called the CIE general colour rendering index (Ra). It is the CIE general colour rendering index that is usually presented in light source manufacturers' catalogues. The CIE general colour rendering index varies widely across light sources (see Chapter C / 3.9).

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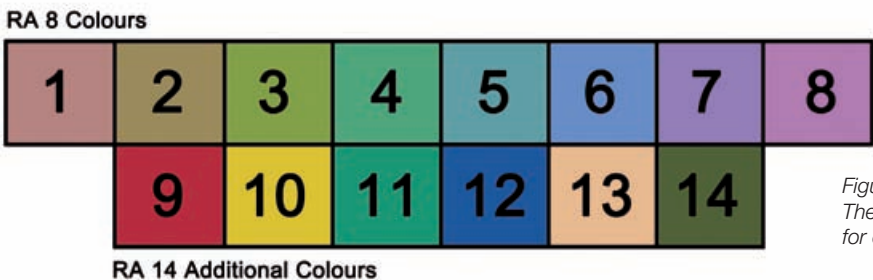


Figure 9
The Ra8 and Ra14 colour fields for description of colour rendering.