

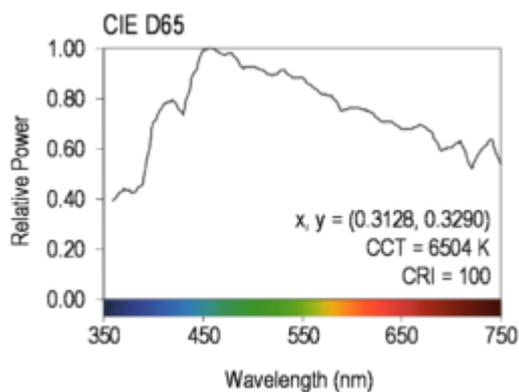
Artificial / simulated daylight

The most common standard for simulated daylight in northern and western Europe is D65. “D” is the type of illuminant, and “65” denotes the colour temperature, which is 6500° Kelvin.

Natural light changes due to atmospheric variations, due to the angle of the earth relative to the sun, hence D65 is applicable to northern and western Europe, which receives similar light.

There is a very technical explanation of the definition of D65 on the internet, suffice it to say that the 3 coordinates are colour temperature and x and y axes.

The accepted physical standard is CIE 1931 for “colour space chromaticity” and the coordinates of D65 are $x=0.3128$, $y=0.3290$. This is a graph showing the spectral content of D65. (Note the power at the UV / blue end of the spectrum. Mathematically the temperature is 6504K but practically 6500K is used)



Artificial daylight fluorescent tubes and fittings are available from specialist manufacturers. *This information comes from JUST Normlicht of Germany.* (Other manufacturers, Osram, Philips etc. also produce 6500K tubes, but the x y coordinates may differ from the standard.)

The D65 fluorescent lamps, developed specifically for JUST, comply with the latest ISO 3668 standard with higher UV component. JUST daylight 6500 pro-Industry lamps are optimally suited to visual matching of a wide variety of materials in the manufacturing industry. They enable you to make reliable colour decisions, thanks to their high colour rendering indices, which come very close to natural daylight, and metamerism indices that are far below the maximum values demanded.

- Perfect for viewing plastics, paints, textiles, decors and coloured coatings of all kinds
- Standard-compliant viewing to ISO 3668, ASTM D1729 and DIN 6173-2
- Even more similar to daylight, thanks to a higher UV component
- Colour temperature: 6500 Kelvin (CCT), D65 (CIE)
- Low metamerism index in the visible range: < 1.0 (M_{lvis})
- Low metamerism index in the UV range: < 1.5 (M_{lUV})
- Very high colour rendering index $R_a > 93$
- Exact colour coordinates (10°): $x = 0.3138 / y = 0.3309 (\pm 0.005)$
- High luminous flux: 2100 lm
- Reduced mercury content
- 36 watt = 1200 mm (48") (other sizes are available)

Different products have different characteristics and requirements, hence whilst D65 is used for the materials listed above, there are other lighting standards for other products, like printed papers, cards and artwork. Equally, general lighting and shop display lighting have different requirements. To find out more, follow this link.

<https://www.gtilite.com/pdf/Various-Light-Sources.pdf>