

Practical Daylight Sources for Colorimetry

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This publication discusses the state-of-the-art of practical daylight sources for colorimetry. It provides information on these lamps and devices used for illumination in the visual evaluation and instrumental measurement of non-fluorescent and fluorescent specimens.

Suppliers of lamps, booths and spectrophotometers provided some of the data on daylight sources. TC members and advisors at four institutions measured the rest. These institutions are the University of Derby (UK), the Hong Kong Polytechnic University (Hong Kong, China), the University of Pannonia (Veszprém, Hungary) and SENAI/CETIQT (Rio de Janeiro, Brazil).

The report concludes from these data that practical daylight sources are commercially available that satisfy the criteria of the relevant national and international standards for both visual evaluation and instrumental measurement. Filtered tungsten, filtered xenon and fluorescent lamps currently provide the best results for visual evaluation. Pulsed filtered xenon provides the best results for instrumental measurements. Light-emitting diode (LED) sources may appear as viable alternatives for both applications in the not too distant future.

Standardisation of any particular source as "best representing daylight" is not recommended. There are significant differences between the spectral properties of the sources currently used in visual evaluation and the sources used in instrumental measurement. These differences produce large differences in the rendering of colours of specimens, especially fluorescent specimens.

The publication is written in English, with a short summary in French and German. It consists of 39 pages with 14 figures and 10 tables, and is readily available via the website of the Central Bureau of the CIE (www.cie.co.at).