
Ancient TL

www.ancienttl.org · ISSN: 2693-0935

Smith, B., 1988. *More cautions on laboratory illumination*. Ancient TL 6(1): 9.
<https://doi.org/10.26034/la.atl.1988.129>

This article is published under a *Creative Commons Attribution 4.0 International* (CC BY):
<https://creativecommons.org/licenses/by/4.0>



© The Author(s), 1988

More cautions on laboratory illumination

B.W. Smith

Research Laboratory for Archaeology and the History of Art, Oxford University, 6 Keble Road, Oxford OX1 3QJ U.K.

Many TL laboratories are illuminated by colour filters wrapped around fluorescent tubes, and over the past decade several filters have been recommended as suitable (Sutton and Zimmerman 1978, Jensen and Barbetti 1979, Spooner and Prescott 1986). However, it should be noted that colour filters can vary from batch-to-batch and it is important to measure the transmission spectra before they are used.

An example of this is shown in figure 1, which gives the transmission of *Cinemoid* No. 1 for the sheet reported by Jensen and Barbetti (1979) and purchased in 1978, compared with the spectrum for a sheet purchased in 1983. It is obvious that the large UV window in the 1983 version makes it totally unacceptable. A sheet purchased by the Oxford laboratory in the intermediate years shows 2% transmission at 320 nm. The manufacturers, Rank Strand Ltd., changed the dye a number of times between 1978 and 1983 (as well as completely changing the manufacturing process) and had not monitored the performance below 400 nm.

The *Chris James and Co.* filters reported by Spooner and Prescott (1986) appear to be the same as the colour effect filter range manufactured by Lee Filters Ltd. (Central Way, Walworth Industrial Estate, Andover, Hants. SP10 5AN, U.K.). These are currently used at Oxford for TL and optical dating

illumination and cost about £4 for a 1.22 x 0.55 m sheet.

For the optical dating laboratories two or three layers of Lee 106 (primary red) are used, while for TL work three or four layers of Lee 158 (deep orange) provides more comfortable lighting (see Spooner and Prescott, 1986 for the transmission characteristics of these). Three or four layers of Lee 158 are necessary because there is a small window in the UV and a single layer transmits about 3% at 370 nm. We prefer it to the Lee 179 (chrome orange) recommended by Spooner and Prescott because there is less transmission in the 500 nm region. To minimize fire risk the filters are mounted on an enclosure around the fluorescent tubes so as to give an air space of several centimetres between the tube and filter. The Lee 106 and 158 spectra have remained uniform for sheets and rolls ordered at intervals over the past two years.

References

- Jensen, H. and Barbetti, M. (1979). More on filters for laboratory illumination. *Ancient TL*, #7, 10.
Spooner, N.A. and Prescott, J.R. (1986). A caution on laboratory illumination. *Ancient TL*, 4, 46.
Sutton, S.R. and Zimmerman, D.W. (1978). A blue-UV absorbing filter for laboratory illumination. *Ancient TL*, #5, 5.

PI. Reviewed by Sheridan Bowman

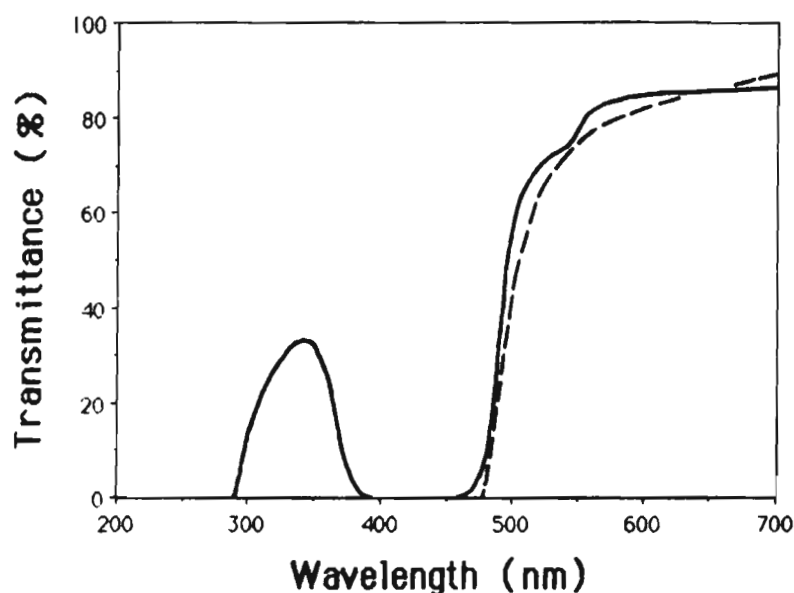


Figure 1. The transmission of a single layer of *Cinemoid* No. 1, purchased in 1983. The 1978 version did not contain a window in the UV, and is shown by the dashed line (from Jensen and Barbetti, 1979)