

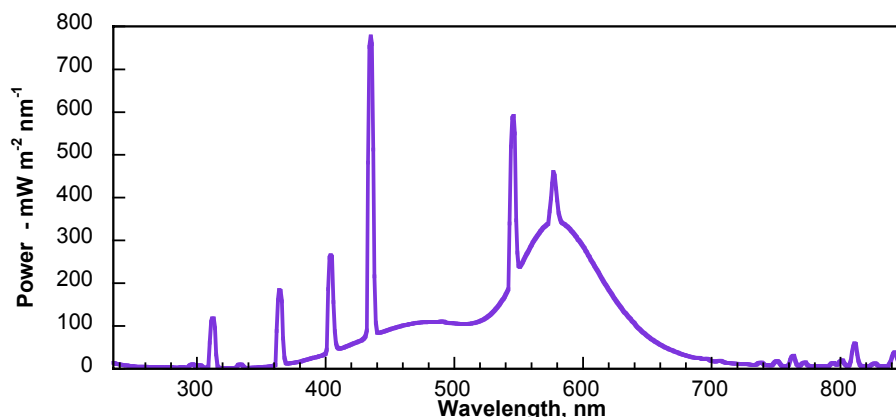
21 June 2004

TECHNICAL RELEASE

LUZCHEM EXPOSURE STANDARD: LES-Vis-01

General information: Luzchem Research, Inc. produces and distributes freely these standards as a service to scientists involved in research in photochemistry, photobiology and photostability. These standards are available in Luzchem's website so that references to any of our standards can be used to define exactly conditions of exposure, and should allow other scientists to readily replicate irradiation conditions. Luzchem has used a calibrated Luzchem SPR-01 spectroradiometer against standard NIST traceable lamps from Spectra Physics (45 W deuterium lamp, model 63945 s/n CE5053 and 200 W filament lamp model 63355, s/n 7-1541) and to the best of our knowledge spectral information is accurate within the experimental bandwidth of 2 nm. Data points were acquired every 1 nm.

Lamp type:	Luzchem LZC-Vis	Internal surface:	Unpolished scattering aluminum
Filter:	none, direct and reflected exposure	Measurement temperature:	25 °C
Filter effect determined by:	not applicable	Measurement date:	17-June-2004
Photoreactor model:	LZC-1	Spectral range monitored:	235 to 850 nm
Number of lamps and location:	8 overhead lamps, approximately 18 cm from target	Harmonic peak interference:	None observed
		Resolved peaks:	312, 365, 405, 436, 546, 576, 581(broad), 811 nm



Region	Range, nm	Dose mWm ⁻²	% energy
UVA	316-400	1754	3.34
UVB	281-315	670.0	1.28
UVC	235-280	269.0	0.51
Visible	401-700	47837	91.16
NIR	701-850	1945	3.71

The table to the left shows the energy distribution at the target, expressed as a percentage of the total energy, and as dose in mW m⁻². The calculations refer to the monitored range indicated above. The division between UVA and UVB has been taken as 315 nm.

- (1) The same spectral information should also apply to other photoreactors constructed of the same materials, including all of Luzchem models.
- (2) For details of Luzchem's spectra determinations see Technical Release: Recording of Luzchem Exposure Standards.

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