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absorbed (spectral) photon flux density

Number of photons of a particular wavelength per time interval (spectral photon flux, number basis, $q_{\mathrm{p},\lambda}$, or spectral photon flux, amount basis, $q_{n,\mathrm{p},\lambda}$) absorbed by a system per volume, V. On number basis, SI unit is $\mathrm{s^{-1}\ m^{-4}}$ common unit is $\mathrm{s^{-1}\ cm^{-3}\ nm^{-1}}$ On amount basis, SI unit is $\mathrm{mol\ s^{-1}\ m^{-4}}$ common unit is $\mathrm{einstein\ s^{-1}\ cm^{-3}\ nm^{-1}}$.
Notes:

1. Mathematical expression: $\frac{q^0_{\mathrm{p},\lambda}\,[1-10^{-A(\lambda)}]}{V}$ on number basis, $\frac{q^0_{n,\mathrm{p},\lambda}\,[1-10^{-A(\lambda)}]}{V}$ on amount basis, where $A(\lambda)$ is the absorbance at wavelength λ and superscript 0 (zero) indicates incident photons.
2. Absorbed spectral photon flux density (number basis or amount basis) should be used in the denominator when calculating a differential quantum yield and using in the numerator the rate of change of the number concentration, $\frac{\mathrm{d}C}{\mathrm{d}t}$ or the rate of change of the amount concentration, $\frac{\mathrm{d}c}{\mathrm{d}t}$, respectively.

Source:
PAC, 2007, *79*, 293 *(Glossary of terms used in photochemistry, 3rd edition (IUPAC Recommendations 2006))* on page 297

