

molar absorption coefficient, ε

Also contains definition of: molar decadic absorption coefficient

Absorbance divided by the absorption pathlength, l , and the amount concentration, c :

$$\varepsilon(\lambda) = \frac{1}{cl} \lg\left(\frac{P_{\lambda}^0}{P_{\lambda}}\right) = \frac{A(\lambda)}{cl}$$

where P_{λ}^0 and P_{λ} are, respectively, the incident and transmitted spectral radiant power.

Notes:

1. The term molar absorptivity for molar absorption coefficient should be avoided.
2. In common usage for l/cm and $c/\text{mol dm}^{-3}$ (M), $\varepsilon(\lambda)$ results in $\text{dm}^3 \text{mol}^{-1} \text{cm}^{-1}$ ($\text{M}^{-1} \text{cm}^{-1}$, the most commonly used unit), which equals $0.1 \text{ m}^2 \text{mol}^{-1}$ (coherent SI units).

Source:

PAC, 2007, 79, 293 (*Glossary of terms used in photochemistry, 3rd edition (IUPAC Recommendations 2006)*) on page 371