

radiative lifetime, τ_0

Also contains definition of: natural lifetime

Lifetime of an excited molecular entity in the absence of radiationless transitions. The reciprocal of the first-order rate constant for the radiative step, or the reciprocal of the sum of these rate constants if there is more than one such step. The equivalent term, natural lifetime, is discouraged.

Notes:

1. Approximate expressions exist relating τ_0 to the oscillator strength of the emitting transition.
2. The subscript 0 is used in this definition, whereas the superscript 0 is used to indicate a non-quenched lifetime in the Stern-Volmer kinetic relationships.

Source:

PAC, 2007, 79, 293 (*Glossary of terms used in photochemistry, 3rd edition (IUPAC Recommendations 2006)*) on page 411