

isotopic fractionation factor

The ratio $(x_1/x_2)_A/(x_1/x_2)_B$, where x is the abundance, expressed as the atom fraction of the isotope distinguished by the subscript numeral, when the two isotopes are equilibrated between two different chemical species A and B (or between specific sites A and B in the same or different chemical species). The term is most commonly met in connection with deuterium solvent *isotope effects*, when the fractionation factor Φ expresses the ratio:

$$\Phi = (x_D/x_H)_{\text{solute}}/(x_D/x_H)_{\text{solvent}}$$

for the exchangeable hydrogen atoms in the chemical species (or sites) concerned. The concept is also applicable to transition states.

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