

encounter-controlled rate

A rate of reaction corresponding to the rate of encounter of the reacting molecular entities. This is also known as 'diffusion-controlled rate' since rates of encounter are themselves controlled by diffusion rates (which in turn depend on the viscosity of the medium and the dimensions of the reactant molecular entities). For a bimolecular reaction between solutes in water at 25 °C an encounter-controlled rate is calculated to have a second-order rate constant of about $10^{10} \text{ dm}^3 \text{ mol}^{-1} \text{ s}^{-1}$.

See also: microscopic diffusion control

Source:

PAC, 1994, 66, 1077 (*Glossary of terms used in physical organic chemistry (IUPAC Recommendations 1994)*) on page 1112