

pseudo-catalysis

If an acid or base is present in nearly constant concentration throughout a reaction in solution (owing to buffering or the use of a large excess), it may be found to increase the rate of that reaction and also to be consumed during the process. The acid or base is then not a catalyst and the phenomenon cannot be called catalysis according to the well-established meaning of these terms in chemical kinetics, although the mechanism of such a process is often intimately related to that of a catalysed reaction. It is recommended that the term pseudo-catalysis be used in these and analogous cases (not necessarily involving acids or bases). For example, if a Brønsted acid accelerates the hydrolysis of an ester to a carboxylic acid and an alcohol, this is properly called acid catalysis, whereas the acceleration, by the same acid, of hydrolysis of an amide should be described as pseudo-catalysis by the acid: the 'acid pseudo-catalyst' is consumed during the reaction through formation of an ammonium ion. The terms 'general acid pseudo-catalysis' and 'general base pseudo-catalysis' may be used as the analogues of general acid catalysis and general base catalysis. The term 'base-promoted', 'base-accelerated' or 'base-induced' is sometimes used for reactions that are pseudo-catalysed by bases. However, the term 'promotion' also has a different meaning in other chemical contexts.

Source:

PAC, 1994, 66, 1077 (*Glossary of terms used in physical organic chemistry (IUPAC Recommendations 1994)*) on page 1153