E1 mechanism (E-elimination, 1-first order) is one of the three limiting mechanisms of 1,2-elimination. It is a two-step mechanism.

Step 1:

A 1,2-elimination occurring via E1 mechanism is called an E1 reaction. The rate law of an E1 reaction is

\[
\text{rate} = k [\text{substrate}]
\]

According to the rate law, an E1 reaction is first order overall, and the concentration of base does not affect the rate of reaction. The implication is that the base does not participate in the rate-limiting step or any prior steps, which suggests that the first step is the rate-limiting step. Since the base is not involved in the rate-limiting first step, the nature of base does not affect the rate of E1 reactions.

see also E2 mechanism, E1cB mechanism

Contributors

- Gamini Gunawardena from the OChemPal site (Utah Valley University)