$S_N2$ mechanism (S-substitution, N-nucleophilic, 2-second order) is one of the two limiting mechanisms of nucleophilic aliphatic substitution at saturated carbon. It is a one-step mechanism:

$$R\underset{L}{\xrightarrow{\text{substrate}}} + \overset{X^-}{\xrightarrow{\text{nucleophile}}} \rightarrow R\overset{X}{\xrightarrow{\text{substitution}}} + \overset{L^-}{\xrightarrow{\text{leaving group}}},$$

A nucleophilic aliphatic substitution at saturated carbon occurring via $S_N2$ mechanism is called an $S_N2$ reaction. The rate law of an $S_N2$ reaction is

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

According to the rate law, an $S_N2$ reaction is second order overall, and the concentration of both substrate and nucleophile affect the rate of reaction, which is consistent with the single-step mechanism.

see also $S_N1$ mechanism

---

**Contributors**

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