insertion

1. A chemical reaction or transformation of the general type:

\[ \text{X} - \text{Z} + \text{Y} \rightarrow \text{X} - \text{Y} - \text{Z} \]

in which the connecting atom or group Y replaces the bond joining the parts X and Z of the reactant XZ. An example is the carbene insertion reaction:

\[ \begin{array}{c}
\text{R} \\
\text{R} - \text{C} - \text{H} \\
\text{R}
\end{array} + \begin{array}{c}
\text{H}_2\text{C} \cdot \\
\text{R}
\end{array} \rightarrow \begin{array}{c}
\text{R} \\
\text{R} - \text{C} - \text{CH}_3 \\
\text{R}
\end{array} \]

The reverse of an insertion is called an extrusion.

See also: α-addition

Source:
PAC, 1994, 66, 1077 (Glossary of terms used in physical organic chemistry (IUPAC Recommendations 1994)) on page 1125

2. A general term given to a reaction involving the transfer of a guest atom, ion or molecule into a host crystal lattice.

See: intercalation reaction, topochemical reaction, topotactic reaction

Source:
PAC, 1994, 66, 577 (Definitions of terms relating to phase transitions of the solid state (IUPAC Recommendations 1994)) on page 583