An unsymmetrical alkene is an alkene in whose molecule the pair of ligands on one doubly bonded carbon is different from that on the other.

eg. 1:

\[
\begin{array}{c}
\text{CH}_3 \\
\text{H} \\
\text{CH}_3 \\
\end{array}
\quad \quad
\begin{array}{c}
\text{CH}_3 \\
\text{CH}_3 \\
\text{CH}_3 \\
\end{array}
\]

1

In 1, one doubly bonded carbon bears two methyl groups and the other a methyl group and a hydrogen atom. Thus, 1 is an unsymmetrical alkene.

eg. 2:

\[
\begin{array}{c}
\text{CH}_3 \\
\text{CH}_3 \\
\text{CH}_3 \\
\text{CH}_3 \\
\end{array}
\quad \quad
\begin{array}{c}
\text{CH}_3 \\
\text{CH}_3 \\
\text{CH}_3 \\
\text{CH}_3 \\
\end{array}
\]

2

In 2, one doubly bonded carbon bears two methyl groups and the other a methyl group and an ethyl group. Thus, 2 is an unsymmetrical alkene.

eg. 3:

\[
\begin{array}{c}
\text{CH}_3\text{CH}_2 \\
\text{CH}_3 \\
\text{CH}_3 \\
\text{CH}_3 \text{CH}_2 \text{CH}_2 \\
\end{array}
\quad \quad
\begin{array}{c}
\text{CH}_3 \\
\text{H} \\
\text{CH}_3 \\
\text{CH}_3 \\
\text{CH}_3 \\
\end{array}
\]

3

In 3, one doubly bonded carbon bears a methyl group and a hydrogen atom and the other an ethyl group and a propyl group. Thus, 3 is an unsymmetrical alkene.

In an organic molecule, a carbon-carbon double bond in which the carbon atoms bear different pairs of ligands is called an unsymmetrical double bond.
eg:

\[ \text{unsymmetrical double bond} \]

see also [symmetrical alkene](#)

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