In mass spectroscopy, an electron is removed from the sample molecule; the resultant radical cation is called the molecular ion (symbols: $M^{•+}$, $M^+$).

\[
\begin{array}{c}
M - e \\
(\text{molecule})
\end{array} \rightarrow M^{•+}
\]

The electron the molecule loses to give the molecular ion is usually the highest-energy electron in the molecule.

eg. 1:

\[
\begin{array}{c}
\text{CH}_3\text{CH}_2\text{CH} \\
\text{CH}_3\text{CH}_2\text{OH}^{•+}
\end{array}
\]

eg. 2:

\[
\begin{array}{c}
\text{C}_6\text{H}_{10} \\
\text{C}_6\text{H}_{10}^{•+}
\end{array}
\]

eg. 3:

\[
\begin{array}{c}
\text{CH}_3\text{C} \equiv \text{O} \\
\text{CH}_3\text{C} \equiv \text{O}^{•+}
\end{array}
\]

see also molecular ion peak

Contributors

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